Drug-related deaths in the UK

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Annual Report 2008

national programme on Substance Abuse Deaths (np-SAD)

Drug-related deaths reported by Coroners in England, Wales, Northern Ireland, Guernsey, Jersey and the Isle of Man; Police forces in Scotland; & the Northern Ireland Statistics and Research Agency

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Preface

The Annual Report of drug-related deaths in the United Kingdom and the six-monthly surveillance report published by the *national programme* on Substance Abuse Deaths (np-SAD) is used by universities, the UK Government, national and international agencies as an indicator of the extent and nature of drug problems and misuse, and makes a contribution towards the prevention of substance abuse problems.

The Programme could not achieve its goals and objectives without the collaboration and co-operation of coroners and their officers. It is important to recognise that their collaboration has been on a voluntary basis and it is the fundamental reason for its success. We would like to thank them all for their active participation, as well as those who have recently agreed to start providing information.

I am particularly pleased to report on continuing participation of coroners in Guernsey, Jersey, the Isle of Man, and Northern Ireland, and of the procurator fiscal for Dumbarton in Scotland. Again, we are grateful to the Scottish Crime and Drug Enforcement Agency for continuing to provide information on drug-related deaths reported to the police in Scotland, and to the Northern Ireland Statistics and Research Agency for information on drug-related poisonings from the General Mortality Register. Their contributions are important as we aim to maintain a UK-wide reporting system.

The findings indicate an increase in drug-related deaths during 2007 in the United Kingdom as a whole, following the increase reported for 2006. This increase is consistent with recently published figures from the General Mortality Registers for Great Britain on death registrations. The number of np-SAD cases notified (primarily for England and Wales) also shows an increase for 2007, This is not good news, and underlines the fact that further vigilance and constant monitoring of the drug-related fatalities situation is essential for understanding such patterns.

As in previous years, the statistics in this report are intended to inform authorities at the local, regional and national levels, as well as health professionals and the general public, about the serious consequences of drug abuse, especially polydrug use. The report also provides a number of indicators of drug abuse patterns, trends and early warnings on emerging drug problems so that appropriate and timely action can be taken.

We would like to express our thanks to the Department of Health for renewing its support for this very important programme. The increased resources made available will enable the Programme to develop and enhance its role in providing information and advice.

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Acknowledgements

We are grateful to the coroners listed below, their deputies, officers and assistants, for providing the information in this report. We apologise if we have inadvertently omitted anyone. This list may differ from the list of jurisdictions given in Appendix 1 due to the fact that many jurisdictions are being merged as coroners retire, and in anticipation of the expected re-structuring of the Coroners' Service in England and Wales. We wish all those who have recently retired all the best for the future, and thank them for supporting the surveillance work of the np-SAD. In some areas, the coroners do not have the resources to provide information but have kindly permitted others that collate such information to pass this on to us on their behalf; we thank those individuals who have contributed information in this way. In addition, a number of coroners in Kent and North Wales who previously have been unable to provide data have now agreed to do so; this information will appear in future reports. We are also indebted to the Scottish Crime and Drug Enforcement Agency and the Northern Ireland Statistics and Research Agency for the provision of data relating to their respective countries. We would like to thank Jessica Baah-Achamfour and Christine Goodair for their help in preparing this publication.

J R H Adeley, Preston & West Lancashire
R J Allen, Wolverhampton
W J Armstrong, Greater Norfolk
I Arrow, Torbay & South Devon, Isles of Scilly, Plymouth & South Devon
P G Ashworth, Derby & South Derbyshire
R D Atkinson, West Lincolnshire
J S Atkinson, North Lincolnshire & Grimsby
R J Balmain, Black Country
C M Beasley-Murray, Essex & Thurrock
P Bedford, Berkshire
D T Bowen, Gwent
A M Bradley, Hampshire – North East
P L Brunton, Ceredigion
M J C Burgess, Surrey, the Queen's Household
E E Carlyon, Cornwall
T Carney, Gateshead & South Tyneside
N D Chapman, Nottinghamshire
M F Coker, Warwickshire
R H G Corner, Milton Keynes
A K Cotter, Birmingham and Solihull
A R Craze, East Sussex
A C Crickmore, Gloucestershire
P de Gruchy, Jersey
P J Dean, Southend & South East Essex, Suffolk
W F G Dolman, Northern London
C C Donnelly, Argyll & Clyde at Dumbarton
C W M Donnelly, Hartlepool
P Dorey, Guernsey
C P Dorries, South Yorkshire – Western
K M Dowding, Great Yarmouth
E A Earland, Exeter and Greater Devon
J P Ellery, Mid & North West Shropshire
G L Fell, North Yorkshire – Western
S P G Fisher, Louth & Spilsby
P E A Forrest, Avon
N G Gardiner, Oxfordshire
M T Gwynne, Wrekin
A A Haigh, South Staffordshire
D M Halpern, Herefordshire
V Hamilton-Deeley, Brighton & Hove
M E Hassell, Cardiff & Vale of Glamorgan
D Hinchliff, West Yorkshire – Eastern
A V Hind, Blackpool & the Fylde
E S Hooper, South Yorkshire – Eastern
D C Horsley, Portsmouth & South East Hampshire
M S Howells, Pembrokeshire
J B Hughes, Central North Wales, North East Wales*
R A Hulett, Buckinghamshire
R. Hunter, Derby & South Derbyshire
C W Johnson, Wirral
M C Johnston, Western Dorset
P Kelly, North Lincolnshire & Grimsby
T Kelly, Northern Derbyshire (formerly Scarsdale and High Peak)
T H Kirkman, Rutland & North Leicestershire
P A Knapman, London - Inner West
J Leckey, Northern Ireland
J Leeming, Greater Manchester - West
P Maddox, Powys
D C Masters, Wiltshire & Swindon
J A Matthews, Isle of Wight
P B Matthews, City of London
I G McCreath, North Northumberland
S McGovern, Coventry & Warwickshire
N Meadows, Greater Manchester - Central
D Mitford, Newcastle upon Tyne
D S Morris, Bedfordshire & Luton, South & West Cambridgeshire
W R Morris, North & East Cambridgeshire
T M Moyle, Isle of Man
S R Nelson, Greater Manchester - North
M D Oakley, North Yorkshire - Eastern

D I Osborne, North East Cumbria (now part of North & West Cumbria, and South & East Cumbria)
D J Osborne, Neath & Port Talbot
W J Owen, Carmarthenshire
R N Palmer, Southern London
S Payne, Bournemouth, Poole & East Dorset
A Pember, Northamptonshire
J S Pollard, Greater Manchester - South
D Pritchard-Jones, North West Wales
A J A Rebello, Liverpool
H R Redman, Central & South East Kent
A S Reid, London - Inner North
N L Rheinberg, Cheshire, Halton & Warrington
P Rogers, Swansea
M R Rose, West Somerset
V F Round, Worcestershire
G S Ryall, Peterborough, Stamford
J C Sampson, London - Inner South
D R Sarginson, Coventry
G M Saul, East Riding & Hull
P.A. Schofield, West Sussex
M J F Sheffield, Teesside
G A Short, Hampshire Central
A F T Sibcy, South Shropshire
M J H Singleton, Blackburn, Hyndburn & Ribble Valley
I Smith, South Cumbria & Furness (now part of North & West Cumbria and South & East Cumbria)
I S Smith, Stoke on Trent & North Staffordshire
E J E Stearns, East London
R J Stone, West Sussex
C K Sumner, Knowsley, St Helens & Sefton
R J Sykes, Mid Kent & Medway
J M Symington, Leicester City & South Leicestershire
J C Taylor, North & West Cumbria
M Taylor, Boston & Spalding
R G Taylor, East Lancashire
E G Thomas, Hertfordshire
A M Thompson, Western London
A Tweddle, Northern District of Darlington & South Durham, North Durham
A Walker, North London
P M Walters, Bridgend & Glamorgan Valleys
R L I Whittaker, West Yorkshire - Western
G U Williams, Powys, Worcestershire
T Williams, Eastern Somerset
D Winter, Sunderland
K S Wiseman, Southampton & New Forest

* denotes data received too late for inclusion in this report.

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Key points

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- Notifications of 1,539 drug-related deaths occurring in 2007 were received by the Programme. A total of 107 coroners from 115 jurisdictions in England & Wales, as well as from Northern Ireland, the Channel Islands and Isle of Man, together with one Procurator Fiscal from Scotland, provided data. The total number of drug-related deaths (DRDs) reported in 2007 indicates an increase of 12.7% over the number reported 1,366) in the previous Annual Report.

- When the figures derived from data provided by the Scottish Crime and Drug Enforcement Agency and the Northern Ireland Statistics and Research Agency are included, the total number of drug-related deaths (DRDs) reported in 2007 for the UK is 1,900. This represents an increase of 8.4% in the number reported by the same sources for 2006 (1,752).

- The demographic profile of fatalities reported to the np-SAD remains consistent with previous reports. The majority of cases were males (77%), under the age of 45 years (71%), and White (95%).

- The principal underlying cause(s) of death were: accidental poisoning (63%); intentional self-poisoning (13%); and poisoning of undetermined intent (12%).

- Opiates/opioids (i.e. heroin/morphine; methadone; other opiates/opioid analgesics), alone or in combination with other drugs, accounted for the majority (71%) of all np-SAD cases.

- Heroin/morphine alone or in combination with other drugs, accounted for the highest proportion (48%) of fatalities, a slight increase over the 2006 level of 46%.

- The highest rates of DRDs per 100,000 population aged 16 and over in 2007 were in Dumbarton (20.6); Brighton & Hove (18.8); Blackpool & the Fylde (14.9); and Peterborough (10.1). Two of these areas, (Dumbarton and Peterborough) showed a significant increase over 2006, whilst Brighton & Hove exhibited only a small increase. There was a significant decline in the DRD rate in Blackpool & the Fylde.

- The following jurisdictions reported significantly lower rates per 100,000 population aged 16 and over than in the previous year: North & West Cumbria (11.4 to 4.5, from 25 to 10 cases); South Manchester (3.5 to 0.9, from 20 to 5 cases); Gateshead & North Tyneside (5.0 to 0.4, from 14 to one case); Exeter & Greater Devon (4.5 to 2.6, from 22 to 11 cases); Swansea (6.5 to 0.5, from 12 to 1 case); Plymouth & South West Devon (8.0 to 3.7, from 19 to 9 cases); Blackpool & the Fylde (19.4 to 14.9, from 35 to 27 cases); and Southampton & New Forest (7.4 to 4.7, from 24 to 16).

- The following jurisdictions reported significantly higher rates per 100,000 population aged 16 & over than in the previous year: Greater Norfolk (2.3 to 7.0, from 14 to 44 cases); Northern London (2.7 to 5.1, from 29 to 54 cases); West Yorkshire Eastern (4.7 to 7.3, from 40 to 65 cases); Northamptonshire (0.6 to 4.6, from 3 to 25 cases); Preston & Western Lancashire (2.5 to 6.1, from 14 to 35 cases); Cornwall (3.5 to 8.0, from 15 to 35 cases); Cheshire (2.4 to 4.7, from 19 to 38 cases); Suffolk (3.0 to 6.1, from 17 to 35 cases); South Staffordshire (1.0 to 4.3, from 5 to 21 cases); and City of Manchester (2.8 to 5.9, from 10 to 22 cases).

- The following perceptible changes were also observed:

  - The proportion of cases involving methadone increased from 17% to 20%; the number of such cases increased from 264 to 295 cases.

  - The proportion of cases involving cocaine increased from 11% to 16%; the number of such cases increased from 174 to 239 cases.

  - The proportion of cases involving hypnotics/sedatives increased from 17% to 21%; the number of such cases increased from 259 to 309 cases.

  - The proportion of cases involving alcohol in combination with other substances increased from 34% to 38%; the number of such cases increased from 525 to 554 cases.

I The role of the toxicologist in Coroners' investigations

Toxicology is the study of drugs and poisons. It is predominantly a laboratory-based science with two main requirements. Firstly, analysis of biological fluids (e.g. post-mortem blood and urine) to determine the presence, absence or amount of drugs and alcohol. Secondly, interpretation of the findings, primarily in respect to the cause of death as a diagnostic aid to the Pathologist. Investigations are performed on behalf of Her Majesty's Coroners and are requested in various circumstances in addition to the typical situations of suspected drug use, overdosage or prescription compliance. These may include instances of fire, hanging, drowning, falls and road traffic accidents where the possibility of drug and/or alcohol involvement is an issue. With a sustained rise in the number and type of drugs available for prescription and continuing illicit drug use, the necessity for toxicological analysis is becoming increasingly common. This is coupled with the changing nature of death investigation in order to rule out the potential contribution of drugs, particularly in light of the Shipman Enquiry (2003).

There is no one simple test or assay that can detect all toxic species. The challenge for analytical toxicology is to analyse for as many drugs or poisons as possible using the specimen types and sample volume available. This requires the use of numerous methodologies and techniques to ensure appropriate and accurate analysis. Confidence in the result can be achieved by the use of complementary techniques or detection methods. For identification, it is common to compare analytical characteristics of case data with that of in-house or commercially available analytical libraries. Despite advances in technology, identification can be difficult in some situations, typically due to the development of newer drugs but also the absence of any available reference material for laboratories. The lack of reference standards can consequently hinder measurement. In specific cases, and especially if reference standards are not available, structural information can be obtained, particularly using mass-spectrometry, that may be helpful in determining the nature of an unknown substance. The lack of reference standards can also consequently hinder quantitative measurements

A primary aim of the toxicologist is to provide answers to questions that may arise during an investigation and a good working relationship with investigators can achieve this. As such, information is required in order to guide analysis and to assist in the interpretation of findings. For example, the circumstances of death, any evidence of drugs at the scene, the drug/prescription history of the deceased and any additional details that may aid in assessing access to drugs, alcohol, chemicals or poisons. The involvement of drugs/poisons is not always obvious and even knowledge of the deceased's job or hobbies can be important. Deaths that have involved hospitalisation can be particularly complicated and a comprehensive clinical and prescription history is used to determine the relevance of any drugs found.

The concentration of any drug present in blood or urine is directly related to a number of factors, in particular; the dose taken, the route of administration (e.g. by mouth), the medical status of the individual and the nature of the drug itself. This can result in low concentrations even following overdose; conversely, high concentrations for some drugs are not always related to excessive use. Also, in situations where death has occurred rapidly (e.g. intravenous heroin use), very little (if any) drug may be present in urine compared to blood, as there may not have been sufficient time for the excretion of drugs or metabolites. As well as influencing interpretation, these issues also impact on the methodology used as the analytical toxicologist has to make sure the technique is suitable (e.g. sensitive, and linear at the required sensitivity). Nevertheless, interpretation of the toxicological findings is the fundamental role of the toxicologist and again there are significant challenges and factors to bear in mind. Particular problems include: the development of tolerance to drug effects (e.g. alcohol and opiates), post-mortem redistribution (whereby the blood concentration of drug is dependent on the anatomical site of sample collection), instability of compounds, post-mortem production (e.g. alcohol), drug-drug interactions and pharmacogenomics (differing genetics can produce fast or slow drug metabolism). These factors result in an overlap in drug concentrations found during therapy and in fatalities; hence it is difficult to provide a "fatal" range for many drugs.

Despite this, case experience is invaluable due to the various drug types, concentrations and circumstances that can be involved. As toxicology is still a growing science, and particularly the area of interpretation of analytical findings, there is a need for continued research to supplement existing knowledge.

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II Introduction

This report continues the series of annual reports published by the national programme on Substance Abuse Deaths (np-SAD).

The first part of this publication takes the form of an annual review of information (including nil returns) received from coroners in England & Wales, Northern Ireland, the Isle of Man and Channel Islands, as well as the procurator fiscal for Dumbarton, the Scottish Crime and Drug Enforcement Agency (SCDEA), and the General Register Office for Northern Ireland (GRONI) via the Northern Ireland Statistics and Research Agency, on 1,900 drug-related deaths that actually occurred in 2007. Since there are differences in legal and coronial systems, data collection methods, and database structures, it is only possible to examine some aspects of drug-related deaths at a UK level. The first part then goes on to examine in detail those deaths reported to the np-SAD using the Programme's data collection form. Since the time lapse between the date of death and the conclusion of inquest varies considerably from case to case, there will undoubtedly be further deaths in 2007 and deaths from additional coroners that are not covered by this report. However, these cases will be analysed in future reports. Information is presented separately for deaths in Scotland (Annex AR4) and Northern Ireland (Annex AR5).

The second part of the report relates to the surveillance period July to December 2007; this has not been previously published. These figures reflect inquests on drug-related deaths reported to np-SAD during that period and may include deaths that actually occurred outside that period. A further 307 inquest reports were received after publication of the 2007 Annual Report on deaths that occurred during 2006 (Ghodse *et al*, 2007). These cases are also briefly analysed. In order to provide continuity with previous np-SAD surveillance reports, changes in the semi-annual death rates since January 2005 are also highlighted (see Annex AR3).

There may be higher rates in some areas compared with previous reporting periods because of Programme staff visiting coroners' offices to collect data themselves, or because of bilateral checks between the np-SAD and local confidential inquiries on case coverage. This has led to more cases being identified than hitherto, and subsequently being reported. This is one way in which the Programme attempts to monitor the quality and coverage of case reporting. In many areas that use Mountain Software[1] there are difficulties in readily identifying relevant cases retrospectively since the text search facilities are not presently available for the key fields that would help selection. Other sources are available in some coroner's offices to identify cases, e.g. diaries and ledgers with details of individual cases.

Recent studies on mortality in drug addicts

A number of recent studies on drug abuse-related mortality have provided examples of how these studies may play a role in improving surveillance, informing treatment provision, and in preventing premature deaths. Relevant studies, published since the last annual report, were identified by a search of databases (including Medline) and the Internet using combinations of key words such as "mortality", "death", "fatality", "drug", "drug-related", "poisoning" and "overdose". A selection of these studies is outlined below.

1 Mountain Software provide a bespoke computer package for coroners comprising management tools, and the generation of statistical forms and other reports, including the form used to submit information to np-SAD. Most coroners in England and Wales use this software.

North American studies

Drug poisoning in the US (United States) has been traditionally seen as an urban problem but latterly evidence has suggested that at least one component of the recent increase in drug poisoning deaths is the rapid increase in the use of opioid analgesics in rural areas. Paulozzi and Xi (2008) compared age-adjusted unintentional and undetermined drug poisoning mortality rates between 1999 and 2004 from the National Vital Statistics System in each of six urban-rural categories. They found that unintentional and undetermined drug poisoning mortality rates rose by 62% between 1999 and 2004. Metropolitan county rates rose by 51%, an increase of 2.7/100,000, while non-metropolitan county rates rose by 159%, an increase of 4.8/100,000. By 2004, metropolitan and nonmetropolitan drug poisoning rates had roughly equalized. In the narcotic drug category (which included heroin, cocaine, and opioid analgesics) deaths in the most urbanised counties increased by 16% while there was an increase of 248% in the most rural counties. Heroin rates did not increase significantly for any urban-rural category. Cocaine rate increases were largest in nonmetropolitan counties. Opioid analgesic rate increases ranged from 52% in large central metropolitan counties to 371% in non-metropolitan, noncore counties. The authors note also that prescription drugs have replaced heroin and cocaine as the leading drugs involved in fatal drug overdoses in all urban-rural categories; and fatal drug overdoses are no longer a predominantly urban phenomenon. Intervention strategies will have to take account of these new patterns.

This shift towards overdoses involving prescription drugs is borne out by a number of national and regional studies. Phillips et al (2008) examined all US death certificates from 1 January 1983 to 31 December 2004 (n = 49,586,156), especially those with fatal medication errors (FMEs) (n=224,355) for trends in 4 types of FMEs that vary according to the relative importance of alcohol/ street drugs and the relative likelihood of professional oversight in the consumption of medications. They found that the overall FME death rate increased by 360.5% over this period, far exceeding the increase in death rates from adverse effects of medications (33.2%) or from alcohol and/or street drugs (40.9%). The increase in FMEs varies markedly by type. Domestic FMEs combined with alcohol and/or street drugs show the largest increase (3196%). In contrast, non-domestic FMEs not involving alcohol and/or street drugs show the smallest increase (5%). Domestic FMEs not involving alcohol and/or street drugs increased by 564%. Non-domestic FMEs combined with alcohol and/or street drugs increased by 555%. The authors conclude, therefore, that domestic FMEs combined with alcohol and/or street drugs have become an increasingly important health problem compared with other FMEs.

In 2005, poisoning was the second leading cause of injury death in the United States; most poisoning deaths are due to unintentional drug overdoses (Fingerhut, 2008). Narcotic-related deaths have played the largest role in the increase in all poisoning deaths from 1999 to 2005, accounting for 56% of all poisoning deaths in 2005 (50% in 1999). Absolute numbers increased 84% over this 7-year period. All poisoning deaths increased 66% from 19,741 to 32,691 deaths, whereas the number of such deaths mentioning methadone increased by 468% to 4,462. Between 1999 and 2005, poisoning deaths mentioning methadone increased from 4% to 14% of all poisoning deaths. More recently, all poisoning deaths increased by 8% between 2004 and 2005, whereas those mentioning methadone increased by 16%. Methadone had the largest relative increase of all narcotic drugs mentioned in poisoning deaths. However, the absolute number of such deaths involving methadone was less than those involving other opioids or cocaine. Between 73 and 80% of poisoning deaths involving methadone have been classified as unintentional;11-13%, of undetermined intent; 5-7%, suicides; less than 1 percent as homicides; and about 1 percent were injuries other than poisoning. Age-specific rates for methadone death are highest in 35-44 and 45-54 year-old age groups. Among those aged 55-64 years, the rate in 2005 was nine times the rate in 1999; and for those in each of the 10-year age groups covering the span 25-54 years, the rates in 2004 were four to six times the rates in 1999. The largest increase was for young persons 15-24 years where the rate in 2005 was 11 times that in 1999. In 2005, crude state death rates for methadone-related deaths ranged from less than 1 per 100,000 in many of the largest states like California, New York, Texas, and Pennsylvania to 4 to 5 per 100,000 in Maine, Utah, Washington, Nevada, and Kentucky.

Increases in methadone and oxycodone related deaths have been documented in the United States in the last couple of years. As a result, Baker et al (2008) investigated all 1998-2003 cases in Cuyahoga County, Ohio, in which post mortem toxicological analyses revealed the presence of methadone, hydrocodone, and oxycodone (which were separated from polydrug intoxications). Throughout the study, an increase was observed in the number of positive cases. Mean and median concentrations in oxycodone and hydrocodone related deaths were more than two times greater than those in non drug-related deaths

The misuse of fentanyl and associated fatalities has also risen up the agenda in North America. For example in a Massachusetts study, Hull et al (2007) reported that, between September 2005 and November 2006, 5,009 medico-legal investigations associated 107 deaths with licit or illicit fentanyl use, along with a co-detection of an opiate/opioid or cocaine/benzoylecgonine, or both. Deaths associated with illicit fentanyl use occur in younger people (39.4 vs. 61.5 years) with higher fentanyl (17.1 ng/ml vs. 4.4 ng/ml) and lower morphine (76.9 ng/ml vs. 284.2 ng/ml) post mortem blood concentrations, and more frequent cocaine co-intoxication (65% vs. 3%), than deaths associated with illicit fentanyl use. A wide range of post mortem blood concentrations of fentanyl was detected (trace - 280 ng/ml), with a minimum concentration of 7 ng/ml of fentanyl strongly associated with illicit use of fentanyl in polydrug cases. The most commonly detected opiates/opioids in illicit fentanyl users were: morphine (29%), oxycodone (14.5%), and methadone (14.5%). Ethanol, cannabinoids, diazepam, citalopram, and diphenhydramine were each detected in greater than 10% of the licit fentanyl cases. Most fentanyl abusers died at their own home and their deaths were most often classified as accidental. Mapping of the primary residence of decedents revealed conspicuous clustering of illicit fentanyl use cases, as opposed to the random pattern in licit use cases. Fentanyl misuse is a public health problem in Massachusetts.

In May 2006, in response to concern over reports of increased non-pharmaceutical fentanyl (NPF) - related deaths, the US Center for Disease Control (CDC) collaborated with medical examiners, law enforcement agencies, and public health departments in six states and local jurisdictions to establish an ad hoc surveillance system for NPF-related deaths (Jones et al, 2008). In each jurisdiction, reports from participating medical examiners were reviewed. An NPF-related death was defined as one in which (a) fentanyl caused or contributed to the death, (b) evidence was found of the involvement of pharmaceutical fentanyl products, and (c) toxicology testing confirmed fentanyl in the body, in unused drugs of the decedent, or in a specimen from a person with whom the decedent shared drugs. Public health departments and law enforcement agencies collaborated with participating medical examiners, initially identifying NPF-related deaths that occurred during April 2005–May 2006 and adding new NPF-related deaths as they were identified. In September 2006, the Drug Enforcement Agency (DEA) took over the surveillance system, using the same case definition; data collection ended in May 2007. Between 4 April 2005 and 28 March 2007, the CDC/DEA surveillance system identified 1,013 NPF-related deaths. The monthly incidence of NPF deaths peaked in June 2006 at 150 cases and decreased to one death in both February and March 2007. Among the 984 decedents whose sex and age were known, 577 (58.6%) were aged 35–54 years, and 788 (80.1%) were male. Among the 984 decedents whose race/ethnicity were known, 545 (55.4%) were White, 392 (39.8%) were Black, and 41 (4.2%) were Hispanic. The pattern of NPF overdoses was probably related to illicit drug distribution networks. For example, the NPF used in Chicago and Detroit is believed to have come from clandestine production at a site in Mexico. However, active surveillance in other areas with high rates of heroin use (e.g., New York City) did not find NPF-related deaths.

Woodall et al (2008) identified seven cases from Toronto, Canada, over a 3-year period where fentanyl, either alone or in combination with other factors, contributed to death following the oral abuse of Duragesic patches. The decedents comprised three females and four males with ages ranging from 20 to 51 years. Post-mortem blood fentanyl concentrations ranged from 7 to 97ng/ml. Two deaths were classified as fentanyl overdose, three cases were classified as a fentanyl and ethanol overdose, one death was considered to be mixed drug intoxication and the remaining death was described as a combination of fentanyl-related and medical causes.

Shah et al (2008) analysed medical examiner data for all unintentional drug overdose deaths in New Mexico during 1990-2005. It was found that the overall unintentional drug overdose death rate in the state increased from 5.6 per 100,000 in 1990 to 15.5 per 100,000 in 2005. Heroin caused the highest number of deaths during the study period, with a notable rate of increase in prescription opioid overdose death during 1998-2005. The most common categories causing death were: heroin alone and heroin/alcohol among Hispanic males; heroin/alcohol among American Indian males; and prescription opioids alone among white males and all female subpopulations. The authors concluded that intervention aimed at preventing drug overdose death should be targeted according to use patterns among at-risk subpopulations.

During a 4-year period, Chugh et al (2008) prospectively evaluated all patients who consecutively had sudden cardiac death and underwent investigation by the medical examiner in the metropolitan area of Portland, Oregon. A total of 22 sudden cardiac death cases with therapeutic levels of methadone (mean 0.48+/-0.22 mg/L; range 0.1-0.9 mg/L) were identified (mean age 37.0+/-10 years, 68% were male) and compared with 106 consecutive sudden cardiac death cases without evidence of methadone (mean age 42+/-13 years, 69% were male). The most common indication for methadone use was pain control (n=12, 55%). Among cases receiving methadone therapy, sudden death-associated cardiac abnormalities were identified in only 23% (n=5), with no clear cause of sudden cardiac death in the remaining 77% (n=17). Among non-methadone cases, sudden death-associated cardiac abnormalities were identified in 60% (n=64, P=.002). The authors conclude that the significantly lower prevalence of cardiac disease in the case group implicates methadone, even at therapeutic levels, as a likely cause of sudden death.

Smyth et al (2007) examined premature mortality in terms of years of potential life lost (YPLL) among a cohort of long-term heroin addicts. They followed a cohort of 581 male heroin addicts in California for more than 33 years. In the latest follow-up conducted in 1996/97, 282 subjects (48.5%) were confirmed as deceased by death certificates. They found that, on average, addicts in this cohort lost 18.3 years (SD=10.7) of potential life before age 65. Of the total YPLL for the cohort, 22.3% of the years lost was due to heroin overdose, 14.0% due to chronic liver disease, and 10.2% to accidents. The total YPLL and YPLL by death cause in this addict cohort were significantly higher than that of US population. They concluded that the YPLL among addicts was much higher than that in the national population; within the cohort, premature mortality was higher among Whites and Hispanics compared to African-American addicts.

Vlahov et al (2008) studied 2089 injecting drug users (IDUs) aged 18-35 years between 1997 and 1999 in 5 US cities. Median age was 24 years; 62% were male, with a mean duration of injecting of 3 years. Using the National Death Index, they identified 68 deaths over a follow-up period through December 2002 with a mortality rate of 7.1/1000 person years. The adjusted standardized mortality ratios (SMR; with national data as the reference) for IDUs was 3.7 for 1997; this increased to 9.8 by 1998, and then continuously declined to 2.5 by 2002. According to the authors, these data confirm considerable excess mortality among recent onset injection drug users compared to non-IDU peers in the general population and indicate the need for improved quality and accessibility to drug abuse treatment and overdose prevention.

Miller et al (2007) investigated patterns of premature mortality, prior to age 30 years, among young IDUs. Since 1996, 572 young (< or = 29 years) IDUs had been enrolled in the Vancouver Injection Drug Users Study (VIDUS). Semi-annually, participants completed an interviewer-administered questionnaire and underwent serologic testing for HIV and hepatitis C (HCV). Twenty-two participants died prior to age 30 years during the follow-up period giving an overall crude mortality rate of 1,368 per 100,000 person-years. Young women IDUs were 54 times (95%CI; 29.6-90.8) and young men IDUs were 13 times (95%CI; 5.5, 25.3) more likely to die prematurely when compared to the Canadian non-IDU population of the same age. Factors associated with mortality included HIV infection and sex work.

Walley et al (2008) assessed the impact of recent heavy alcohol use, heroin/cocaine use, and homelessness on short-term mortality in HIV-infected persons. They analyzed survival in a longitudinal cohort of 595 HIV-infected persons with alcohol problems at 6-month intervals in 1996-

2005. Death within six months of their last assessment occurred in 31 subjects (5.2%). Heroin or cocaine use [hazard ratio (HR), 2.43; 95% confidence interval (CI), 1.12-5.30)] and homelessness (HR, 2.92; 95% CI, 1.32-6.44) were associated with increased mortality, after controlling for other effects.

Naso et al (2008) provided a retrospective evaluation of drugs detected in a paediatric (i.e. less than 19 years of age) post-mortem population between the years 1998 and 2002 (n = 730). Forty-two percent of deaths were deemed to be natural, 27% accident, 13% undetermined, 5% suicide, and 2% homicide. Of the 640 cases subjected to comprehensive testing, 38% were positive for at least one compound. Resuscitative/treatment drugs were detected most frequently (56% of positive results), followed by illicit drugs (26%), and ethanol (11%). In this population, the authors recommended that illicit drugs and ethanol should be targeted for testing, especially when limited specimens are available for analysis.

European research has shown that Substance Use Disorders (SUDs) emerging in adolescence are known to predict early mortality (Kjelsberg 2000). Clark et al (2008) examined this in the US context by looking at 870 adolescents (aged 12-18 years) from clinical programmes (n= 510) and community sources (n= 360) followed up for an average of 8 years. Subjects recruited from clinical and community settings were similar on gender, age, and ethnic group composition. There were 21 deaths amongst these subjects, with an average age at death of 22.8 years. In 12 cases for which the information could be collected, the causes of death were motor vehicle accidents (5), homicide (4), suicide (1), drug overdose (1), or other accident (1). In Cox regression models examining the main effects of individual independent variables, survival time was significantly predicted by gender and ethnic group. Survival time was significantly predicted by SUDs, hazardous use, and selling drugs, but was not predicted by suicide attempts. Among African American males with SUDs, 23% died by age 25; an odds ratio of 10.3 compared to White males.

Australasian studies

In Australia, Gibson et al (2008) examined the predictors of mortality in a randomized study of methadone vs. buprenorphine maintenance treatment. They carried out a 10-year longitudinal follow-up of mortality among participants in a previous randomized trial of methadone versus buprenorphine maintenance treatment. The sample consisted of a total of 405 heroin-dependent (DSM-IV) participants aged 18 years and above who participated in the original study. They identified an overall mortality rate of 8.8 deaths per 1000 person-years (py) of follow-up. The rate for those out of treatment was 14.3 compared to 0.7/1000 py for those retained in pharmacotherapy. Increased exposure to episodes of opioid treatment reduced the risk of mortality; there was no differential mortality among methadone versus buprenorphine participants. Older participants randomized to buprenorphine treatment had significantly improved survival than younger ones on methadone programmes. The risk of premature mortality in those of aboriginal or Torres Strait Islander origin was 5 times that of other ethnic groups. The authors concluded that increased exposure to opioid maintenance treatment reduces the risk of death in opioid-dependent people.

Stoove et al (2008) aimed to provide Australian data comparable to those reported internationally on the rate of mortality among IDUs. They retrospectively examined mortality among participants (n=220) from the first Australian cohort study of IDUs. The overall mortality rate among those followed up was 0.8 per 100 py (95% CI, 0.6-1.2 per 100 py). Mortality was higher among males, most common among those in their early thirties and drug-related mortality occurred typically after substantial injecting careers. Extensive experience of incarceration (≥ 3 times) was associated with increased risk of mortality. Rates of mortality among Australian IDUs were considered to be lower than those reported internationally,

The blood toxicology of coronial cases in Sydney, Australia, involving a total of 705 cases of death due to opioid toxicity and 28 morphine positive homicide cases between 1 January 1998 and 31 December 2002 were compared by Darke et al (2007). There was no significant difference between the median morphine concentrations of the overdose and homicide groups (0.50 versus 0.45 mg/l). The overdose group was more likely to have blood alcohol (OR 3.21) present, but less likely to have methadone (OR 0.26)

and cannabis (OR 0.04). There was a significant negative correlation between blood morphine and alcohol concentrations among the overdose group (rho = -0.32), but not among the homicide group (rho = -0.03). Independent predictors of a higher blood morphine concentration were a lower alcohol concentration and a higher methadone concentration. This study suggests that morphine concentrations *per se* are not diagnostic of overdose; the importance of co-ingestion of alcohol has to be taken into account in such events.

Another Australian study of coronial cases examines the demographic characteristics, circumstances of death, toxicological results and major organ pathology of methylamphetamine-related deaths in that country (Kaye et al, 2008). A total of 371 cases in which methylamphetamine was listed as a cause of death were identified from the National Coronial Information System (NCIS). The mean age of decedents was 33 years (range 15-61 years); 77% were male and 41% were unemployed. Route of administration was predominantly by injection (89%). Drugs other than methylamphetamine were detected in 89% of cases, mostly benzodiazepines (41%) and morphine (36%). The median blood methylamphetamine concentration was 0.2 mg/l (range 0.02–15.0 mg/l). Deaths were overwhelmingly accidental, with 14% determined to be suicides, and occurred in a private home (71%). Cardiovascular pathology, typically coronary artery atherosclerosis, was detected in 54% of decedents. Cerebrovascular pathology, typically cerebral haemorrhage and hypoxia, was present in 20% of cases. The authors concluded that users need to be informed of the potential harms of methylamphetamine use, particularly those associated with the cardiotoxicity of methamphetamine and the use of methylamphetamine in conjunction with other drugs.

Darke et al (2008) analyzed 485 consecutive homicide cases autopsied at the New South Wales Department of Forensic Medicine (1996-2005). Substances were detected in 62.6% of cases, and illicit drugs in 32.8%. Alcohol, cannabis, opioids, and stimulants were most commonly detected. Cases where death resulted from a physical altercation were more likely to have had alcohol and cannabis present. Illicit drugs were prominent amongst firearms deaths. The proportion of alcohol positive cases increased from 25% on Monday to 49% for Saturdays/Sundays. Alcohol was more common in incidents in the 00:01-06:00 h and 18:00-24:00 h periods. They concluded that psychoactive substances appear to substantially increase the risk of death by homicide.

European studies

Jönsson et al (2007) explored data on drug abusers subjected to a forensic autopsy in Sweden during 2002-2003. They examined 10,273 deceased individuals during the study period, 7% (743/10,273) of whom were classified as drug abusers. Illicit drugs were detected in 70% of cases. On average, about four substances per case (legal or illegal) were detected post mortem. The most common substances were ethanol and morphine. In total, 50% (372/743) died of poisoning, while 22% (161/743) died of natural causes. Death was considered to be directly or indirectly due to drug abuse in 47% (346/743) of cases, whereas evidence of drug abuse was an incidental finding in 21% (153/743) or based on case history alone in 33% (244/743) of cases.

Knudsen et al (2008) documented all 259 cases of GHB poisonings in Gothenburg, Sweden, treated at the local University Hospital during 1995-2004. Furthermore they identified, between 1996 and 2004, 743 seizures of GHB; 236 seizures of 1,4-butanediol, and 343 seizures of GBL. During 2004 only, there were 6 deaths with heroin, 7 with GHB, 32 with amphetamine, 6 with cocaine, and 1 with methadone. Of the 7 GHB fatalities, 5 were attributed to overdose, the others to suicide and trauma. The mean age of decedents was 22 years (range 16-27 years).

Bjornaas et al (2008) studied mortality rate and causes of death among all 185 hospitalised opioid addicts treated for self-poisoning or admitted for voluntary detoxification in Oslo, Norway, between 1980 and 1981. All deaths that had occurred by the end of 2000 were identified from the Central Population Register. During a period of 20 years, 70 opioid addicts died (37.8%), with a standardized mortality ratio (SMR) equal to 23.6 (95% CI, 18.7-29.9). The SMR remained high during the whole period, ranging from 32.4 in the first five-year period, to 13.4 in the last five-year period. There were no significant differences in SMR between self-poisonings

and those admitted for voluntarily detoxification. The registered causes of death included accidents (11.4%), suicide (7.1%), cancer (4.3%), cardiovascular disease (2.9%), and violent deaths (2.9%). The authors concluded that the risk of death among opioid addicts was significantly higher for all causes of death compared with the general population.

Ødegård et al (2007) identified causes of death among Norwegian drug abusers and investigated the risk factors for fatal overdose and other causes of death. They analysed a cohort of 501 drug abusers admitted to treatment at the State Clinic for Drug Addicts, 120 km south of Oslo, in the period 1981-1991. Crude incidence rates for all deaths and overdose deaths did not appear to vary with age. At every age the risk of death was higher with a long-term history of drug abuse, and more so for fatal overdose than for death by other causes. Overdose accounted for 47% of all deaths (88% of drug-related mortality), followed by suicide (11%, AIDS (10%), and liver diseases (5%). The annual mortality was estimated at 2.5%, and the SMR was 23%.

Clausen et al (2008) conducted a prospective cross-registry study with up to 7 years follow-up of all opiate dependents in Norway who applied for Opioid Maintenance Treatment (OMT) (n = 3789). They were cross-linked with data from the death registry from Statistics Norway. Date and cause of death were crossed with dates for initiation and termination of OMT, and subjects' age and gender. A baseline was established from the waiting list mortality rate. Intention-to-treat was investigated by analysing mortality among the entire population that started OMT. The researchers found that mortality in treatment was reduced by half (Relative risk: R = 0.5)) compared with pre-treatment. In the "intention-to-treat" perspective, the mortality risk was reduced to an RR of 0.6 compared with pre-treatment. The patients who left the treatment programme showed a higher mortality rate, particularly males.

An unusual epidemic of poisonings due to the powerful opioid designer drug 3-methylfentanyl (TMF) was revealed among Estonian drug users in 2005-2006 (Ojanperä et al, 2008). The number of TMF-related fatal accidental poisonings identified was 46 and 71 for 2005 and 2006, respectively. The proportion of male victims was 91.5% and the mean age at death of all victims was 26 years. TMF was used predominantly by intravenous injection. Concomitant use of other drugs involved alcohol, amphetamines, benzodiazepines, and cannabis, and very rarely other opioids.

Cruts et al (2008) aimed at developing a method to estimate the total mortality among problem drug users. The results from a cohort study among methadone patients in Amsterdam were projected on the whole population of problem drug users in that country. In a first unadjusted estimation, the estimated total number of deaths among problem drug users in The Netherlands in 2001 was 606. After adjustment for age, the estimated mortality decreased to 573 deaths, and after adjustment for HIV infection, this estimate again decreased to 479 deaths. From the ultimately estimated mortality, 11% was considered to be not related to drugs, 23% was attributed directly to drugs, and 66% was attributed indirectly to drugs.

A prospective study of 161 victims of falls from height was undertaken by French researchers in Lyon (Fanton et al 2007). The aim was to determine the benefit of systematic qualitative and quantitative toxicological analysis in examining such fatalities. The primary cause of death was suicide (85%), followed by accidents (7%) and homicide (1%). Cause of death was undetermined in the remaining cases. In the suicide cases, there was evidence of psychotropic medicines in 57% of the observations, with a much higher proportion of benzodiazepines and antidepressants in women than in men. Quantitative toxicological analysis showed overdose on medication in 16 suicide victims, with toxic levels in 11 of these. Systematic qualitative and quantitative toxicological analysis made a significant contribution to the verdict of suicide by revealing either an unknown psychiatric treatment or a toxic level.

Bauer et al (2008) investigated mortality in a cohort of 269 opioid-dependent German patients enrolled in synthetic opioid maintenance therapy during 1998-1999. Structured interviews (Euro-ASI), urinalysis at time of interview as well as autopsy findings from deceased patients were analyzed. After six mailings, information from 147 (55%) patients was obtained and 85 patients (32%) were interviewed. Of these 77% (n = 65) were still enrolled in maintenance therapy, 19% (n = 16) were drug-free and 5% (n = 4) had relapsed. There were 29 fatalities; 38% died of

intoxication with illicit substances, 35% related to AIDS and 28% to somatic complications. The SMR was 29. According to the authors, the study confirmed the high mortality rate in this patient group and supported the importance of maintenance therapy.

The quality of street heroin seized in Vienna, Austria, in 1999 was examined by Risser et al (2007) to establish whether there was a relationship between the purity of street heroin and heroin-related emergencies and deaths. Street heroin confiscated by the Viennese police, run-sheets of drug-related emergencies, and post mortem reports of drug-related deaths in Vienna in 1999 were analyzed. During the study period, 387 heroin-related emergencies and 75 deaths were registered in Vienna. The decedents consisted of 20 females and 55 males; females were significantly younger than males (26 vs. 31 years). In 16 cases, only morphine could be detected, and these deaths were classified as pure heroin-related deaths. In the remaining 59 cases, morphine, in addition to other CNS depressant drugs and/or alcohol, was detected (polydrug heroin-related deaths). Thirty per cent of male heroin victims had additionally consumed alcohol, in contrast to 35% of female heroin users. There were no statistically significant associations between: blood alcohol concentration and morphine concentration in the medulla oblongata; the morphine concentration in the medulla oblongata blood for females and males; and morphine concentration in the medulla oblongata for polydrug heroin-related deaths and pure heroin-related deaths. Time-series analysis revealed no statistically significant relationship between the rate of heroin-related incidents and the diacetylmorphine concentration of street heroin. Compared with reports from other countries, Viennese street heroin, with a median diacetylmorphine content of 6.5%, was generally of low quality. The widely held belief that the number of heroin-related deaths could be explained simply through fluctuations in the purity of street heroin could not be substantiated, even though the results of this study do not rule out an association between the purity of heroin and heroin-related deaths/ emergencies.

In Italy, Davoli et al (2007) evaluated the impact of a range of treatments for opiate dependence on overdose mortality. They carried out a prospective cohort study of 10,454 heroin users entering treatment 1998-2001 followed-up for 10,208 person-years in treatment and 2,914 person-years out of treatment. They observed 41 overdose deaths, 10 whilst in treatment and 31 out of treatment, generating annual mortality rates of 0.1% and 1.1% and SMRs of 3.9 [95% confidence interval (CI) 2.8-5.4] and 21.4 (16.7-27.4), respectively. Retention in any treatment was protective against overdose mortality (HR 0.09 95% CI 0.04-0.19) compared to the risk of mortality out of treatment, independent of treatment type and potential confounders. The risk of a fatal overdose was 2.3% in the month immediately after treatment and 0.77% in the subsequent period; compared to the risk of overdose during treatment the HR was 26.6 (95% CI 11.6-61.1) in the month immediately following treatment and 7.3 (3.3-16.2) in the subsequent period. They concluded that a range of treatments for heroin dependence reduced overdose mortality risk. However, they pointed out as well that considerable excess mortality risk in the month following treatment indicates the need for greater health education of drug users and implementation of relapse and overdose death prevention programmes.

Ferri et al (2007) described the overall and cause-specific mortality among heroin users attending Public Treatment Centres in Italy. The study involved a cohort of 10,376 patients (8881 men and 1495 women) enrolled over a period of 18 months between September 1998 and September 2000 and followed-up through March 2001 (VEdeTTE study). They identified 190 deaths which occurred during the study period: 70 deaths were due to overdose (37%), and 38 to AIDS (20%). The direct standardized overall mortality rate per 1000 person-years was 12.0 (CI 95% 5.4-18.6). The findings also revealed that overdose is the leading cause of death in heroin users (mortality rate 2.6/1000 p-y (95% CI 0.8-4.5) among males and 4.0/1000 p-y (95% CI 0.9-7.2) among females. The population attributable fraction highlighted that 14% (95% CI 10.9-18.5) of deaths in people aged 30-34 in Italy in 2000 could be attributed to heroin addiction. The authors concluded that mortality observed in their cohort was lower than that observed in previous studies, mainly due to reduction of AIDS and overdose mortality. However, their findings confirmed excess mortality among heroin users compared to age-matched general population.

Pavarin. (2008) examined mortality rates in a cohort of 347 cocaine addicts enrolled in treatment programmes at the SerTs (Drug Addiction Services) of Bologna's metropolitan area from 1989 to 31 December 2004. A total of 7 male deaths: one caused by AIDS, one by drug overdose, three by vascular diseases, two by injuries and poisonings. The mortality rate was 4.98 per 1000 person-years in both sexes, 5.38 for males. The survival chance after 12 years from the first contact with the SerTs was 89%. The death risk goes down after two years from the first enrolment and drops remarkably only after two years from the last contact with the drug treatment service. Excess mortality for all causes among males in comparison with the general population was five-fold (SMR 4.75). The highest SMR was related to vascular diseases (15), followed by overdose (10) and suicide (7).

In a 17-year cohort study (1987-2004) of Spanish injecting drug users (IDUs), Ferreros et al (2008) examined changes in cause-specific mortality before and after 1997 according to human immunodeficiency virus (HIV) serological status. A total of 7186 IDUs contributed 80677.218 person-years to the study. The overall mortality rate was 19.7 per 1000 person-years (95% CI, 18.8-20.7). This rate decreased from 22.9 per 1000 (95% CI, 21.4-24.7) before 1997 to 17.4 per 1000 (95% CI, 16.3-18.6) after 1997 [relative risk (RR) 0.83; 95% confidence interval (CI), 0.75-0.92]. HIV-negative individuals showed a similar pattern for drug overdose, suicide and accident mortality. Both groups showed an increase in proportional mortality in liver-related causes, cardiovascular diseases and cancer.

A mortality crisis followed the break-up of the Soviet Union in 1992, but there has been relatively little analysis of death rates among young people, many of which appear related to alcohol and other drug (AOD) use. Death rates range from exceedingly high in some countries of the Commonwealth of Independent Sates (CIS), for example Russia, to very low in others (e.g. Armenia). This divergence increased considerably over the 1990s. Redmond and Spooner (2008) examined reasons for the divergence in youth deaths. An ecological study of country-level data was used to explore the relationships between risk factors, AOD use and youth deaths across time and between countries. Qualitative research literature was used to supplement the statistical data. AOD abuse risk factors were divided into 'proximal causes' (e.g. AOD availability) and 'distal causes' (e.g. social cohesion, welfare, culture). Proximal risk factors appeared to explain some of the AOD use and death data, but they did not explain all of the country differences. Analysis of distal risk factors suggested that family and community strengths are important factors in the trends in AOD abuse and youth mortality. They concluded that policy response to AOD abuse and mortality among young people needs to attend to both proximal and distal factors.

In Ireland, a report by the National Suicide Research Foundation (2008) presented the results of a study analysing data routinely collected in 2002 by means of Form 104. This form was introduced in 1968 ‘to supplement the information on the Coroner’s Certificate for the better statistical classification of cause of death’. The form was expanded in 1998 to facilitate a more detailed recording of the circumstances surrounding unexpected deaths, and now contains a number of mandatory fields: socio-demographic information, medical history, psychosocial factors, circumstances of death and contributing factors. One of these forms was completed for 1,718 (95%) of all the deaths in 2002 that led to an inquest. There was a high level of completeness for socio-demographic information (75% and above) but low levels for medical history and contributing factors (35% and below). In 88% of cases, Garda (police) opinion as to the cause of death (as recorded on the form) agreed with that of the Central Statistical Office. The majority of unreturned forms related to deaths registered in Dublin. This may have led to inaccurate recording of the external causes of deaths in the area. Furthermore, the authors suggest that cases of suicide in Dublin were commonly misclassified as being of ‘undetermined intent’, which may partially explain the lower suicide rate found in Dublin compared to other areas of the country. The most important findings were: (a) in general, a higher proportion of male deaths than female deaths were alcohol dependent; (b) 15% of suicide deaths were alcohol dependent, compared to one-fifth of deaths by accident, homicide or undetermined cause; (c) one-third of undetermined deaths were drug dependent, compared to 13% of accidental deaths; (d) of the homicide deaths, one-quarter of the men were drug dependent, compared to none of the women; (e) of the suicide

deaths, 34% of women were drug dependent, compared to 16% of men, and a higher percentage of women than men were dependent on prescription medication. The authors made a number of recommendations, including the development of a new system to record medical and psycho-social information on deaths that lead to an inquest.

The results of two studies by the European Alliance Against Depression looking at gender differences in methods of suicide (using ICD10 codes X60-X84) have recently been published. The first looked at the proportions of 7 leading suicide methods used in 16 European countries between 2000 and 2004/5 (Värnik et al, 2008a). Hanging was the most common suicide method among both males (54.3%) and females (35.6%). For males poisoning by drugs (8.6%) was the third most common method whereas for females (24.7%) it was the second most prevalent method, but the leading cause in five countries (England, Finland, Ireland, Scotland and Switzerland). The second study took a closer look at those aged 15-24 years in 15 countries (Värnik et al, 2008b). Hanging was still the most frequent method used for both genders. Poisoning by drugs was the joint-fifth most common method for males but the joint-second for females, both at an average rate of 0.6 per 100,000 population. Suicide rates by drug poisoning for males in England and Scotland were 0.5 and 2.6 respectively; the corresponding rates for females were 0.5 and 2.7.

In a recent editorial, Morgan et al (2008) emphasized that surveillance of deaths related to drug misuse in Europe is important for measuring the impact of intervention and for planning future harm reduction strategies, but it cannot answer more fundamental questions, such as understanding what are the main drivers of drug overdose trends. According to these authors, the number of overdose deaths is related to the interplay between changes in the size of the drug-using population and to their overdose mortality risk, with the latter related to other factors such as the proportion of IDU in treatment or changes in drug administration. By 2004/05 the drug-related mortality rate in England and Wales (using the Drug Strategy definition) was one of the highest in Europe. However, case definition and data extraction from mortality statistics varies between countries despite there being a common European definition. In none of the other selected European countries did the overdose mortality rate double during the 1990s. Instead the evidence suggests that mortality rates declined in Spain and Italy and were stable in Germany. In addition, the other selected countries all achieved substantially greater reductions in drug-related deaths than England and Wales between 1999 and 2004/05, with Germany and Italy exceeding a 20% decrease and Spain (six cities) reducing the drug-related mortality rate by 17%. The increase in overdose deaths during the 1990s in England and Wales was driven largely by increases in the prevalence of heroin use. The authors suggest that the reduction in overdose deaths from 2001 may have been the result of the rate of increase in treatment superseding any increase in the prevalence of drug misuse, thereby reducing the overall risk of overdose death. However, in the United Kingdom since 1993 there has been no investment in large-scale longitudinal studies that could test this hypothesis and monitor trends in overall risk of overdose. Mortality patterns can be changing substantially and quickly and large-scale cohort studies are needed in different European countries, including the UK, to provide comparable information about overdose risk. Interpreting mortality statistics and trends in drug use is complex, and unlikely to lead to any firm conclusions without information on overdose risk. The authors argue that a better understanding of the mechanisms that underlie overdose mortality statistics is required.

British studies

Smith and Crome (2007) report that the annual reports for drug abuse deaths in the North Staffordshire area are, as a whole, about average for the country. Certain patterns appear to emerge: men die more commonly than women from drug-related problems. The figures for the period 2001–2005 indicate an average of just over eight deaths *per annum* in the under-30 age group, with a peak of 13 in 2002 and only six in 2005. The striking thing about the findings is that deaths from drug abuse, which invariably involve heroin in all age groups, typically and increasingly take place in the older age groups. Only six of the 23 drug abuse related deaths in 2005 were of persons under 30 years old, and just two under 25. While the average number of drug-related deaths is just over eight *per annum* in the under-30 age group, the average number of deaths *per annum* in the same age group over the same period

from road collisions in the North Staffordshire area alone was 15: one is statistically much more likely to die in a car than as a result of drug abuse, though drugs, and alcohol, may help achieve that end. It is difficult to be too precise about how many deaths each year are due to the effects of alcohol. Because chronic alcoholism, liver cirrhosis and so on are regarded as natural causes and do not have to be reported to the coroner, many such deaths will go straight to the Registrar of Deaths and bypass the coroner's office altogether. During 2005 all deaths reported to the North Staffordshire coroner having a clear link with alcohol, whether as a part of a drug-related death, a fall downstairs whilst drunk, a road traffic accident, or just plain simple liver cirrhosis, were identified as part of a study. In the current climate, even such research as this will undoubtedly under-record these deaths. However, despite the fact that the majority of alcohol-related deaths are now regarded as deaths from natural causes, many such deaths are still referred to the coroner (possibly a hangover from the previous system) and alcohol was a feature in a very substantial number of deaths. The overall total number of alcohol-related deaths in 2005 was 117, including 73 non-inquest cases.

Secondary analysis of the DORIS cohort study (1033 Scottish drug users recruited in 2001-2 and followed up at 33 months) found that 38 deaths occurred in the cohort, giving a standardised mortality ratio of 1244 (Bloor et al, 2008). Only 22 of the 38 deaths in drug users were classified as drug related deaths. From estimates of the size of the problem drug using populations in both England and Scotland, the contribution of deaths in drug users to national death rates was estimated: the attributable risk fraction for Scotland is 17.3% and that for England is 11.1%. Excluding estimated numbers of deaths in drug users brings down the age-standardised mortality at ages 15-54 years from 196 to 162 per 100,000 in Scotland and from 138 to 122 per 100,000 in England; 32.0% of the excess mortality in Scotland is due to drug use. The researchers conclude that the standardised mortality ratio for Scottish drug users is 12 times as high as for the general population. The higher prevalence of problem drug use in Scotland than in England accounts for a third of Scotland's excess mortality over England. Successful public health efforts to reduce the prevalence of problem drug use in Scotland or deaths in Scottish drug users would have a dramatic impact on overall mortality in Scotland.

The Fife Drug Deaths Monitoring and Prevention Group investigated drug deaths in Fife in 2005-7 (Baldacchino et al, 2008). The number of deaths was higher in 2006 (19) and 2007 (20) than in 2005 (15), and was below the Scottish average. Most deaths in Fife occur in large towns, but at no higher rates than in rural communities. The majority (83%) of individuals' home town and town of death matched; the rest died within 10 miles of their home towns. Drug-related deaths are more likely to occur in socially deprived areas and areas with other drug-related problems. The mean age of decedents was 31 years (range 17-48). Multiple morbidities were present in the youngest and oldest individuals: the youngest tending to have psychological conditions; the oldest had physical health problems. Most deaths occur during the spring time; this may be linked with victims' release from prison. Most such deaths occur at the weekend; but this is unlikely to be linked with prison release patterns. Victims were most likely to live alone and in council accommodation at the time of their death. Heroin/morphine (80%), diazepam (43%) and alcohol (35%) were the 3 main substances of misuse detected in cases of drug deaths in Fife. Benzodiazepines as a class, are the substances most commonly implicated (89%). Psychostimulants (e.g. MDMA) were involved in 10% of deaths; however there is a recent emergence (2007) of deaths involving cocaine. These findings are consistent with Scotland-wide research but not reflected in UK national research where heroin/morphine, alcohol and other opioids are the most frequently detected substances of misuse. The majority of cases were positive for two or more combinations of drugs in toxicology reports: heroin/morphine appeared in 7/10 combinations, benzodiazepines featured in 5/10, and alcohol in 3/10. Benzodiazepines and heroin/morphine combined were the most frequently misused substances (41% of cases), followed by alcohol and morphine (19%), as well as a few overdoses on heroin alone. One-fifth (22%) were receiving pharmacological treatments; most were prescribed methadone (18%). Of these decedents 16% were still on a methadone programme when they died.

Studies previously reported in the np-SAD annual reports have not revealed any significant changes in deaths attributable to co-proxamol. Legislative changes in 2005 led to a phased withdrawal of co-proxamol

from the UK market. Sandilands and Bateman (2008) undertook a retrospective, observational study of mortality relating to poisoning by single agents in Scotland for the period 2000-2006. Mortality data were obtained from the General Register Office Scotland, and primary care prescribing data from the Information and Statistics Division of the Scottish Executive Health Department. A significant reduction in the proportion of poisoning deaths due to co-proxamol was observed following the changes in legislation [mean 2000-2004, 37 deaths (21.8% of total poisoning deaths); 2006, 10 (7.8%); $P < 0.0001$]. The most significant reduction was seen in male out-of-hospital deaths [mean 2000-2004, 17 (21.8%); 2006, two (2.9%)]. This was associated with a decline in prescriptions by 60% within 6 months of legislation. The authors argue that legislation has resulted in a major reduction in the number of deaths associated with co-proxamol poisoning in Scotland, with no compensatory increase in mortality from poisonings from other common analgesics. They extrapolate that a minimum of 300 lives across the UK have been saved by the withdrawal of co-proxamol.

The Centre for Suicide Prevention based at the University of Manchester has recently published its findings for Scotland on suicide and homicide by people with mental illness (CSP, 2008). Amongst the range of issues explored are the roles of alcohol and drug misuse in such deaths. The study covers 1,373 patient suicides in the period April 1997 to December 2005. There was a history of alcohol misuse in 785 (131 deaths p.a.) and a history of drug misuse in 522 (87 deaths p.a.). Dual diagnosis was found in a quarter of patient suicides – 343 in total (57 deaths p.a.). Forty-one of the 58 patient homicides had a history of alcohol misuse, and 45 cases had a history of drug misuse. About a quarter (13) had been identified as having a dual diagnosis. Among all perpetrators, whether patients or not, alcohol and drug dependence were the most common diagnoses. In both suicide and homicide, most were not under the care of addiction services. The report concludes that alcohol and drugs are the most pressing mental health problems in Scotland.

The seventh report on confidential enquiries into maternal deaths in the United Kingdom recently reported on deaths between 2003 and 2005 (Lewis, 2007). Maternal deaths are extremely rare in the United Kingdom; only 295 women who died from causes directly or indirectly related to their pregnancy, out of more than two million mothers who gave birth in the United Kingdom (UK) during this period. Eleven per cent of those who died of any cause had problems with drugs or alcohol; 60% of these were known to drug services. Fifty-seven women out of the 98 women whose deaths were attributable to psychiatric causes had problems with substance abuse: 45 were misusing drugs and 12 were alcohol dependent. One death resulted from volatile substance abuse. The majority of those who were drug dependent were using heroin, but most were also using methadone, amphetamines, cocaine, benzodiazepines and some alcohol as well. A small number died from suicide, the rest died from an accidental overdose of their drug of abuse, physical consequences of their abuse or related medical conditions. Some died from domestic abuse. Many of the subjects were socially excluded; most being homeless or living in very inadequate conditions. The report concludes that substance misuse makes a significant contribution to maternal mortality in general, and especially to psychiatric causes.

Farrell and Marsden (2008) investigated drug-related deaths among newly released prisoners in England and Wales. They took into account a national sample of 48,771 male and female sentenced prisoners released during 1998-2000 with all recorded deaths included up to November 2003. They recorded 442 deaths, of which 261 (59%) were drug-related. In the year following index release, the drug-related mortality rate was 5.2 per 1000 among men and 5.9 per 1000 among women. All-cause mortality in the first and second weeks following release for men was 37 and 26 deaths per 1000 per annum, respectively (95% of which were drug-related). There were 47 and 38 deaths per 1000 per annum, respectively, among women, all of which were drug-related. In the first year after prison release, there were 342 male deaths (45.8 were expected in the general population) and there were 100 female deaths (8.3 expected in the general population). Drug-related deaths were attributed mainly to substance use disorders and drug overdose. Coronial records cited the involvement of opioids in 95% of deaths, benzodiazepines in 20%, cocaine in 14% and tricyclic antidepressants in 10%. The authors concluded that newly released prisoners are at acute risk of drug-related death and

that appropriate prevention measures should be implemented. (See also Farrell and Marsden (2005).)

Hickman et al (2008) recently discussed the evidence in support of the hypothesis that alcohol increases the risk of a heroin/opiate overdose through a pharmacological interaction. A few facts are already well established, including: opiate overdose deaths rarely involve a single drug; alcohol is the most common drug involved; there is a negative association between alcohol and morphine concentration at post mortem; and post-mortem levels of morphine are often below the levels expected of highly tolerant individuals. Although the existing evidence, according to the authors, is consistent with the hypothesis that heroin users who drink alcohol may require less heroin to overdose than those who do not drink (all other factors being equal), other causal (and non-causal) pathways could not be ruled out. In fact, they suggested that alcohol could be associated negatively with tolerance, or confounded by other factors.

Flanagan (2008) reports (using data that were partially revised by ONS in 2007) that deaths from fatal poisoning (accidents, suicides and open verdicts) in England and Wales have declined steadily (from 3,952 in 1979 to 2,565 in 2004). There was also a small annual reduction in suicides in males and in females over this period. In 2004, self-poisoning accounted for 25% of suicides and open verdicts in males (n = 862) and 45% in females (n = 540). Poisoning death rates per million prescriptions were about 10 times higher for tricyclic anti-depressants (TCAs) than for selective serotonin reuptake inhibitors (SSRIs) in England and Wales between 1993 and 2004. However, despite increased prescribing of SSRIs and related compounds in recent years, there has been a fall of 10% in the annual number of antidepressant-related poisoning deaths, in line with the reduction in suicides (all methods) over this period. Citalopram appears to have higher overdose toxicity than other SSRIs. Of newer non-SSRI antidepressants, the overdose toxicity of venlafaxine, although lower than that of TCAs, appears to be higher than that of SSRIs, with seizures, serotonin syndrome, rhabdomyolysis, renal failure and hepatic failure having been reported. Poisoning deaths involving antipsychotics either alone, or with other drugs and/or alcohol were much fewer than those involving anti-depressants (713 and 5,602 deaths, respectively, in England and Wales, 1993-2004). Following the restriction on thioridazine prescription (2000), thioridazine-associated fatal poisoning fell to zero by 2002. However, this pattern was balanced by an increase in deaths associated with atypical antipsychotics, most notably clozapine, olanzapine and quetiapine. Antipsychotic-related poisoning deaths were higher in 2004 than at any time since 1993.

Wong et al (2008) hypothesised that organomegaly is associated with chronic substance use, and may represent a prognostic indicator. The weights of hearts, livers and spleens from 280 deceased chronic alcoholics (CA) and 33 deceased chronic drug users (CD) were compared to those of 291 deceased controls (e.g. non-substance users who died of traumatic injuries) investigated by the Division of Pathology at the University of Edinburgh. Alcohol misuse was associated with cardiomegaly (27% vs. 19%, male CA vs. control) and hepatomegaly (38% vs. 15%). In CA, occurrence of hepatomegaly was associated with death at a younger age (female mean age 47+/-9.4, $p<0.009$, male mean age 50+/-11.6, $p<0.007$). The study identified the potential role of hepatomegaly as a determinant of poorer outcome in chronic alcohol misusers.

Piperazines such as 1-benzylpiperazine (BZP), 1-(3-trifluromethylphenyl) piperazine (3-TFMPP), and 1-(3-chlorophenyl)piperazine (3-CPP) have recently become drugs of abuse in the UK. These substances have stimulant effects comparable to amphetamines but with a lower potency and differential global scheduling status. They have been sold as a supposed legal alternative to ecstasy. A few non-fatal and fatal cases where BZP has been detected and typically involving other drugs have been published internationally. However, toxicity involving BZP alone has also been reported. No case data currently exist for 3-TFMPP. Elliott and Smith (2008) used ultraviolet (UV) and liquid chromatography-mass spectrometry data to distinguish the structures of positional isomers of TFMPP and CPP, and confirm the presence of BZP and 3-TFMPP in three UK fatalities (road traffic deaths and a fatal fall), with two cases involving both drugs. These are the first reported cases of 3-TFMPP in post-mortem fluid. In all cases, other drugs and/or ethanol were found. BZP was found at concentrations of

0.71, <0.50, and 1.39 mg/L while 3-TFMPP was found at concentrations of 0.05 and 0.15 mg/L in post-mortem blood. Concentrations were also measured in urine. Although BZP and 3-TFMPP were not the direct cause of death, the toxicological findings presented in this paper may assist the interpretation of future cases involving these drugs. (The presence of these substances in np-SAD cases are discussed in the commentary below.)

III Drug-related deaths in the United Kingdom

1. Demography

Notifications of 1,539 drug-related deaths occurring in 2007 were received by the np-SAD. Responses (including nil returns) were received from a total of 107 out of 115 coroners' jurisdictions in England and Wales. This is a coverage rate of about 93%. In addition, the coroners in Northern Ireland, Guernsey, Jersey and the Isle of Man contributed data analysed in this Annual Report, as well as one Procurator Fiscal in Scotland.

Furthermore, the SCDEA and the NISRA provided data reported to them for deaths in the period under examination. These deaths do not represent the full number of drug-related deaths in the UK since not all deaths are reported to the SCDEA (see next paragraph), and further inquests remain to be completed in England, Wales and Northern Ireland on deaths that occurred in 2007.

Deaths reported to the SCDEA by Scottish police forces are those which meet the definition used by the Association of Chief Police Officers (Scotland) – "where there is prima facie evidence of a fatal overdose of controlled drugs. Such evidence would be recent drug misuse, for example controlled drugs and/or a hypodermic syringe found in close proximity to the body and/or the person is known to the police as a drug misuser although not necessarily a notified addict." Thus, most suicides in Scotland will be excluded.

Table 1, together with Figures 1-3, takes into account the data from the np-SAD as well as the SCDEA and the NISRA. Therefore the total number of drug-related deaths in the UK from the above sources is 1,900 in 2007, compared to 1,752 cases from the same sources in the equivalent period in 2006. This represents an increase of 8.4%. However, this increase is in part due to several more coroners' areas reporting to the Programme, a much improved flow of information from Northern Ireland, as well as to an actual increase in the number of cases notified.

A comparison of the areas which reported to np-SAD in both years shows that the number of cases increased by 9.6% (from 1,363 to 1,494 deaths). Furthermore the average number of cases notified per area increased from 13.1 for 2006 to 14.4 for 2007.

The majority (79%) of cases were male (Table 1). This proportion varied from 71% in Northern Ireland to 89% in Scotland.

Location of death was reported in all but 340 cases (17.8%) – mostly in Scotland. Where place of death was reported, about 69% died at a defined residential address (i.e. the deceased's home address or other private residential address), 19% died in hospital and 12% died elsewhere (e.g. in a public place). The proportion dying at a defined residential address ranged from 68% for np-SAD cases to 89% in Scotland and 79% in Northern Ireland. The corresponding proportions for deaths in hospital ranged from 20% for np-SAD cases to 10% in Scotland and 4% in Northern Ireland.

The mean age at death was 38.7 years for all sources combined. However, there were differences between the individual datasets: np-SAD 39.6 years; SCDEA 33.3 years; and NISRA 43.0 years. There were also differences in the mean ages broken down by gender. Whereas the overall average age for males was 38.6 years compared to 44.3 for females (a difference of 6 years), the mean age for males in Scotland (33.4 years) was only slightly higher than that for females (32.6 years). However, in Northern Ireland the gap was considerably greater; the mean age for males was 40.6 years compared to 48.9 years for females. Similar patterns are exhibited by the median age and semi-interquartile ranges.

The above differences reflect distinctions in the nature and purpose of the data sources, the types of cases covered, and the volumes

of cases dealt with by them. These variations also illustrate the limitations on making comparisons between them. Additional information for each of these registers is given below.

Table 1: Demographic variables for drug-related deaths, UK, 2007

Variable	Category	Number (%)
Total		1,900 (100.0)
Gender	Male	1,503 (79.1)
	Female	397 (20.9)
Age-group (years)	Under 15	1 (0.1)
	15-24	249 (13.1)
	25-34	568 (29.9)
	35-44	593 (31.2)
	45-54	292 (15.4)
	55-64	126 (6.6)
	Over 64	71 (3.7)
Location of death	Defined residential address	1,076 (56.7)
	Hospital	299 (15.7)
	Other	185 (9.7)
	Not known	340 (17.9)

Figure 1: Drug-related deaths by age and gender, UK, 2007

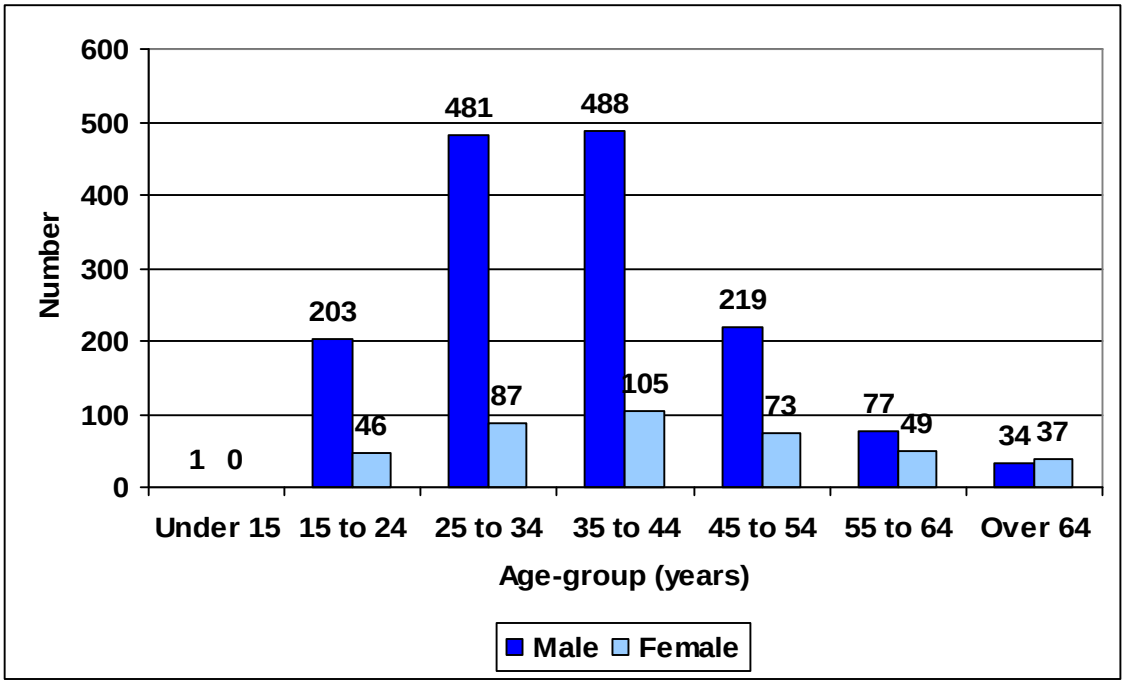


Figure 2: Drug-related deaths by age, UK, 2007

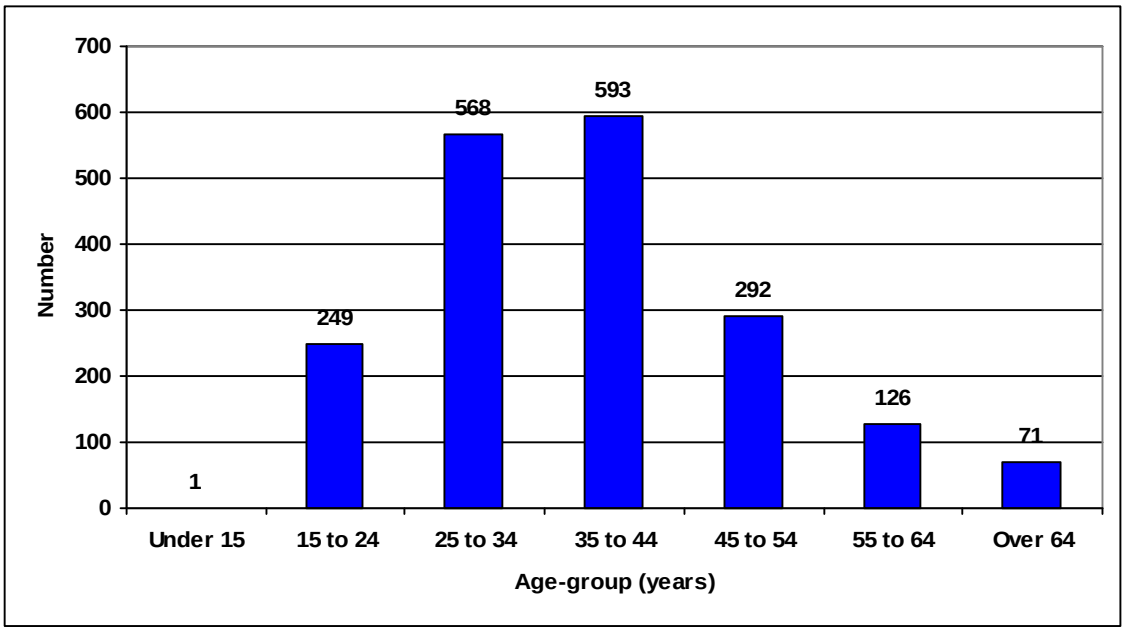
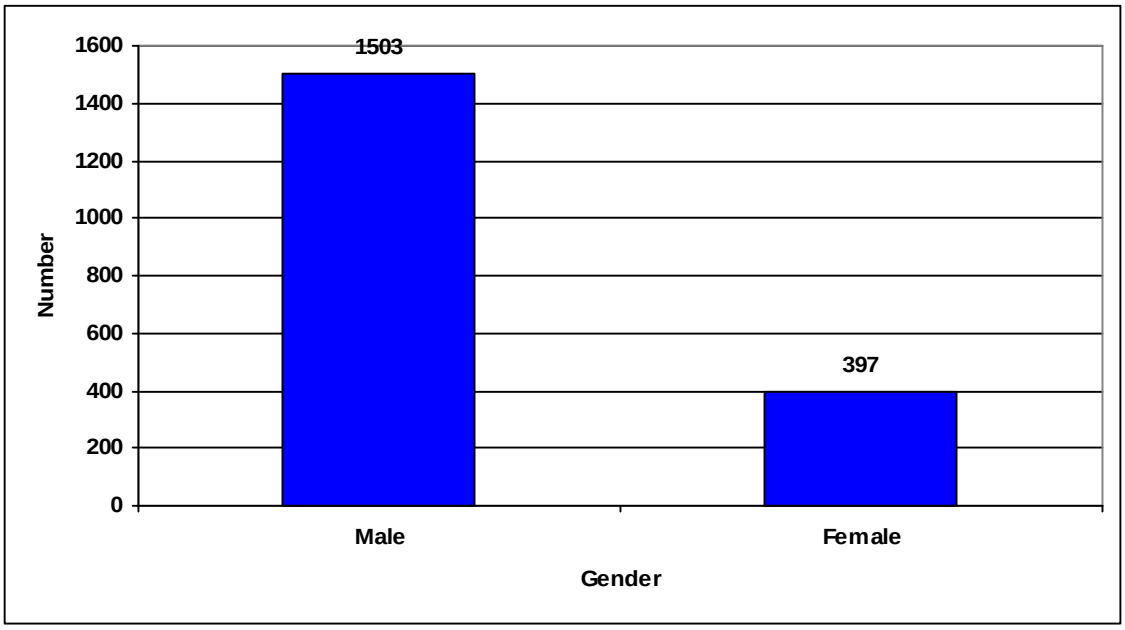


Figure 3: Drug-related deaths by gender, UK, 2007



IV Profile of np-SAD cases

1. Demography

Notifications of 1,539 drug-related deaths occurring in 2007 were received by the np-SAD that met the Programme's case criteria. Responses (including nil returns) were received from a total of 107 out of 115 coroners' jurisdictions in England and Wales. This is a coverage rate of about 93%. In addition, the coroners in Northern Ireland, Guernsey, Jersey and the Isle of Man contributed data analysed in this Annual Report, as well as one Procurator Fiscal in Scotland.

The majority (77%) of cases were male (Table 2). The median age at death was 37.9 years (semi-interquartile range = 8.4) (Figures 4-6). The majority (71%) of cases were under 45 years. Where ethnicity was known, the majority were White (94.7%); the rest were Black (2.4%), Asian (1.3%), and Other (1.6%). Just under half (49%) were unemployed. There were similar proportions living alone (45%) or with others (43%), but 5% were of no fixed abode.

Table 2: Demographic variables for drug-related deaths, np-SAD cases, 2007

Variable	Category	Number (%)
Total		1,539 (100.0)
Gender	Male	1,189 (77.3)
	Female	350 (22.7)
Employment status	Unemployed	751 (48.8)
	Employed	491 (31.9)
	Childcare/houseperson	23 (1.5)
	Student	23 (1.5)
	Retired/sickness/invalidity	141 (9.2)
	Other	8 (0.5)
	Not known	102 (6.6)
Living arrangements	Alone	887 (44.8)
	With others	657 (42.8)
	No fixed abode	70 (4.5)
	Other	51 (3.3)
	Not known	72 (4.7)

2. Drug-related death rates (Annex AR2)

The jurisdictions in England and Wales reporting the highest annual drug-related death rates per 100,000 population aged 16 years and over in 2007 were as follows: Brighton & Hove (18.8); Blackpool & the Fylde (14.9); and Peterborough (10.1). Dumbarton had a rate of 20.6.

3. Location of death

Location of death was reported in all but three cases. About 69% died at a defined residential address (i.e. the deceased's home address or other private residential address), 19% died in hospital and 12% died elsewhere (e.g. in a public place).

Figure 4: Drug-related deaths by age and gender, np-SAD cases, 2007

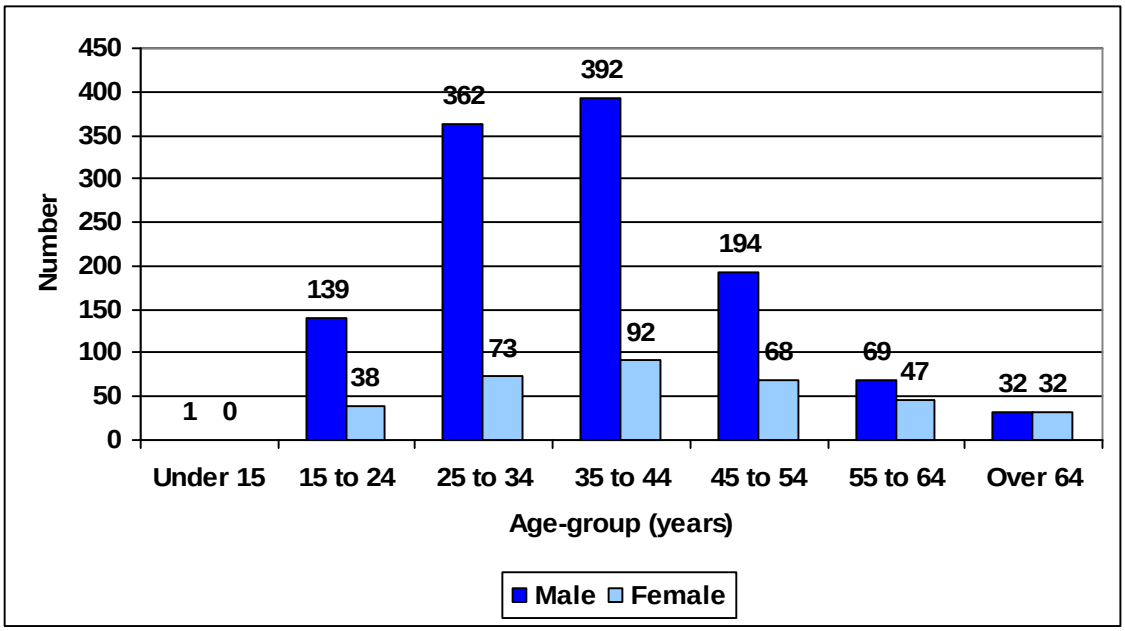


Figure 5: Drug-related deaths by age, np-SAD cases, 2007

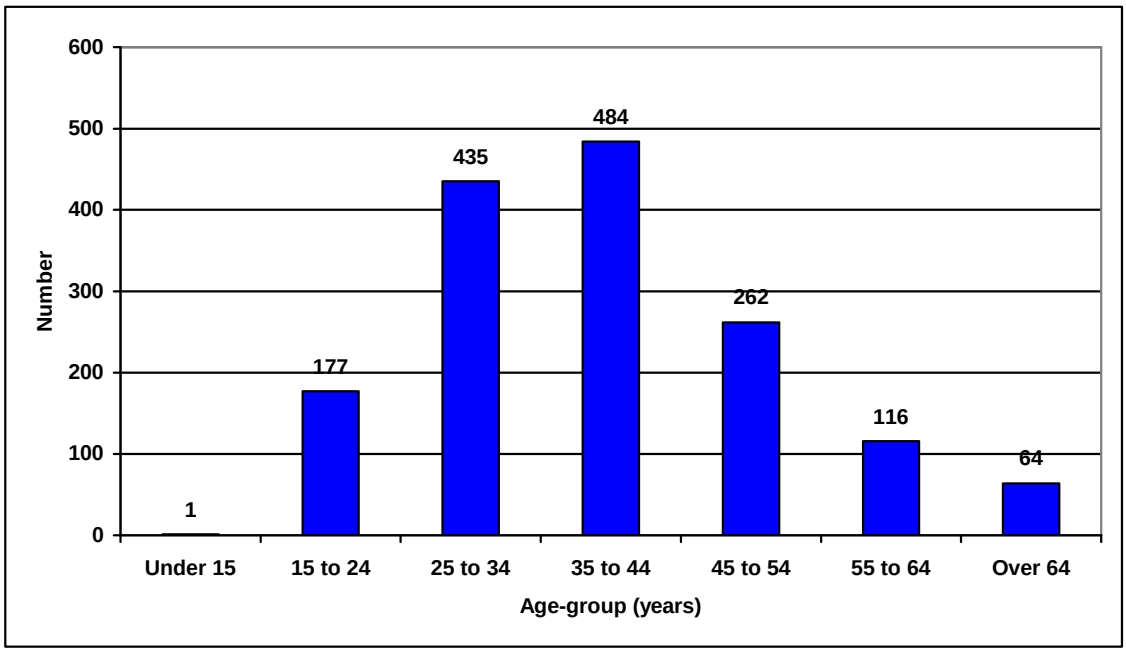
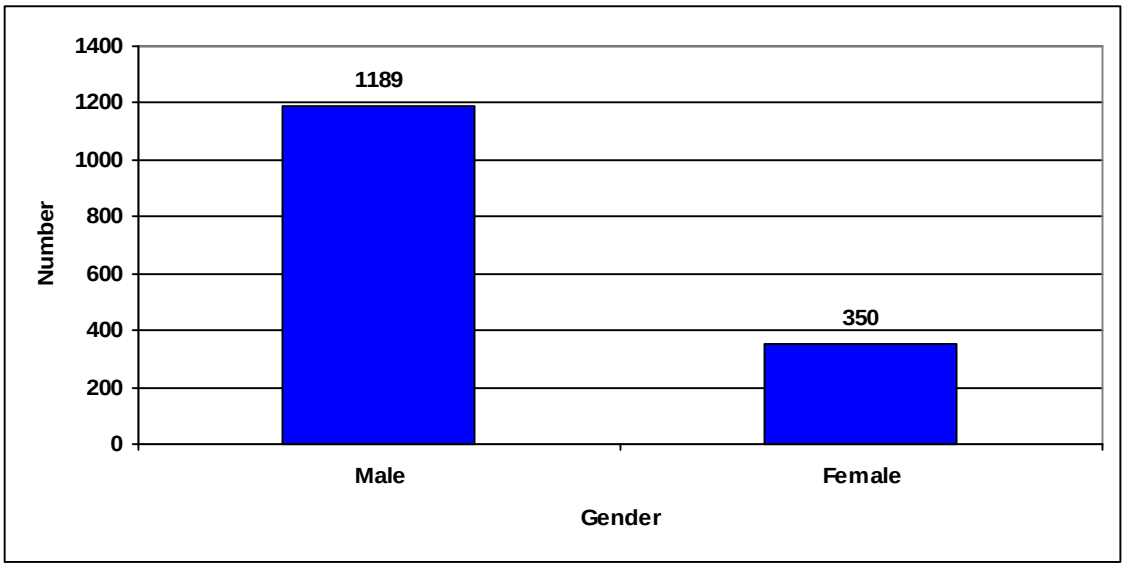


Figure 6: Drug-related deaths by gender, np-SAD cases, 2007



4. Underlying cause(s) of death (Annex AR1)

To enable comparison with various national and international datasets all causes of death have been coded according to the International Classification of Diseases (ICD-10). This is an international standard for the classification of diseases and health-related problems published by the World Health Organisation (1992). The proportions of ICD-10 categories of underlying cause(s) of death were as follows:

- Accidental poisoning (X40-X47): 62.7%
- Intentional self-poisoning (X60-X67): 13.2%
- Poisonings of undetermined intent (Y10-Y15): 11.8%
- Other (e.g. natural causes, drowning, hanging, unascertained): 12.3%

5. Manner of death

The 'intentionality' of deaths based on the coroner's verdict and/or or other additional information employing ICD-10 codes is inappropriate for informing interested parties as to whether certain categories of drug-related deaths can be prevented.

Whilst the 'cause' of death (as given in the preceding section) is concerned with the disease or injury responsible for the lethal sequence of events, the 'manner' of death explains how the cause of death arose, i.e. a natural or violent death. In accordance with best international practice, the following categories for 'manner of death' have been adopted: natural, accidental, suicidal, homicidal, undetermined, and unclassified/not specified.

Verdicts of 'dependence on drugs' or 'non-dependent abuse of drugs' are regarded as 'accidental'. The 'manner of death' is derived from information such as the verdict or 'finding', history of drug misuse or dependence, post mortem drugs, and other information; and is based on the interpretation of the death by np-SAD and clinical presentation/profile of the individual case. The results of this process for 2007 cases are as follows:

- Natural: 2.5%
- Accidental: 69.3%
- Suicidal: 16.2%
- Homicidal: 0.1%
- Undetermined: 11.2%
- Unclassified/not specified: 0.8%

6. Substances implicated in death

6.1 All substances

Psychoactive drugs were not directly implicated in 5% of cases (n = 77). Of the remaining 1,462 cases, the principal substances implicated were heroin/morphine (48%), alcohol in combination with other substances (38%), other opiates/opioid analgesics (25%), anti-depressants (21%),

hypnotics/sedatives (21%); methadone (20%), and cocaine (16%).

Figure 7 takes into account data where one of the following drugs was known to be implicated: alcohol, anti-depressants, cocaine, ecstasy-type drugs, heroin/morphine, hypnotics/sedatives, methadone, or other opiates/opioid analgesics.

6.2 Single substances

The following substances, as the sole implicated drug, accounted for 483 (33%) deaths: heroin/morphine (14%), other opiates/opioid analgesics (4%), anti-depressants (4%), methadone (4%), cocaine (3%), hypnotic/sedatives (1.4%), ecstasy-type drugs (0.7%), anti-psychotics (0.6%), amphetamines (0.5%), and cannabis (0.2%).

Table 3: Psychoactive substances implicated in death, np-SAD cases, 2007

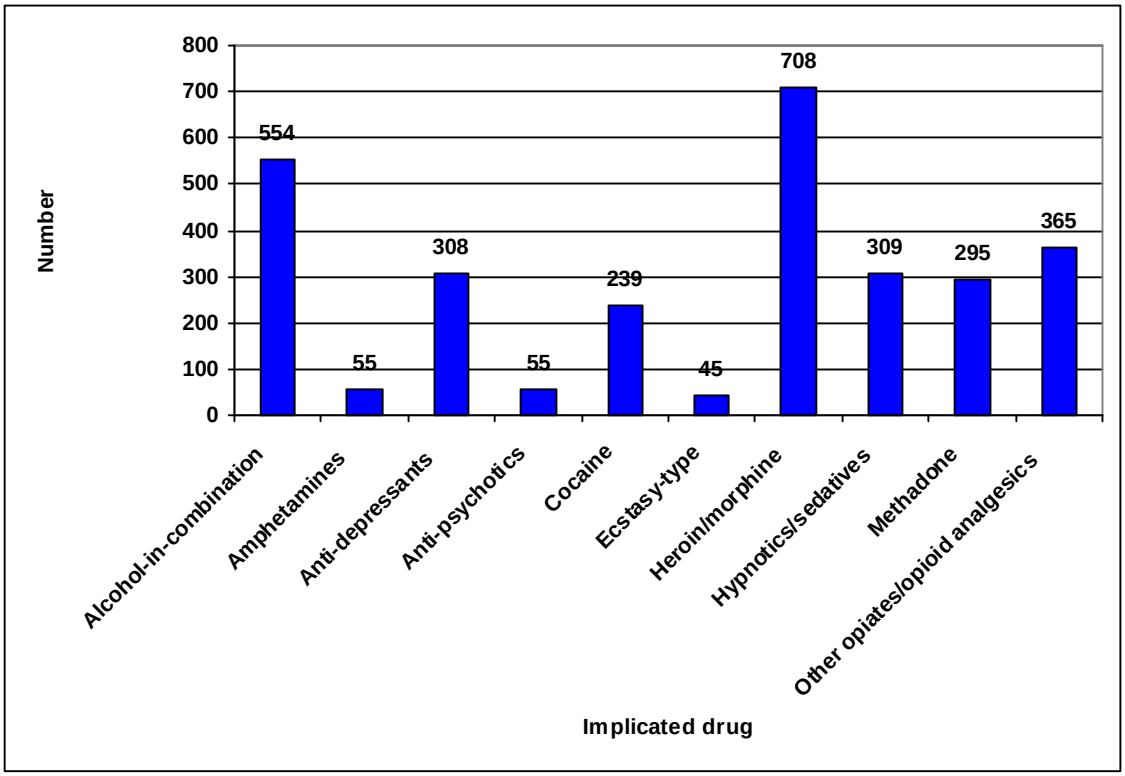
Drug category	Number (%) of cases where no other substance was implicated	Number (%) of cases where drug was implicated
Total	1,462 (100.0)	1,462 (100.0)
Alcohol	-	554 (37.9)
Amphetamines	8 (0.5)	55 (3.8)
Anti-depressants	58 (4.0)	308 (21.1)
Anti-epileptics	4 (0.3)	36 (2.5)
Anti-psychotics	9 (0.6)	55 (3.8)
Cannabis	3 (0.2)	55 (3.8)
Cocaine	40 (2.7)	239 (16.3)
Ecstasy-type drugs	10 (0.7)	45 (3.1)
GHB	2 (0.1)	7 (0.5)
Heroin/morphine	202 (13.8)	708 (48.4)
Hypnotic/sedatives	20 (1.4)	309 (21.1)
Methadone	63 (4.3)	295 (20.2)
Other opiates/opioid analgesics	63 (4.3)	365 (25.0)

Notes: Column totals may sum to more than 100% since more than one substance may be implicated in a death. Not all cases had drugs directly implicated in death; these are excluded from this table.

7. Prescribed psychoactive drugs (Table 4)

Altogether, 811 np-SAD cases were reported to be receiving prescribed psychoactive drugs at the time of their death. Within this group, prescribed drugs of the following therapeutic drug classes were reported: anti-depressants (46%); hypnotic/sedatives (40%); other opiate/opioid analgesics (21%); anti-psychotics (21%) and methadone (16%). 'Polypharmacy', i.e. multiple prescriptions of psychoactive drugs, occurred in 66% of these cases.

Figure 7: Drug-related deaths by psychoactive drug implicated, np-SAD cases, 2007



V Associated risks

1. Prescribed psychoactive drugs

Of the 811 cases prescribed psychoactive drugs at the time of their death, 55% had those same drugs, alone or in combination with other drugs, implicated in their death (Table 4). This proportion ranged from 26% for anti-psychotics to 82% for heroin/morphine.

The following paragraphs take a closer look at the relationship between deaths and the involvement of prescribed medication. This approach is to be distinguished from that in Table 4, which only looks at those on prescribed medication.

1.1 Methadone

Methadone, alone and in combination with other drugs, was implicated in 295 cases. Of these, 71% may have obtained methadone from illicit sources, compared to 29% who were known to be receiving prescribed methadone prior to their death (Percentage Ratio: PR = 2.4, 95% CI = 2.0 - 2.9).

Methadone alone was implicated in 63 cases. Of these, 73% may have obtained the drug from illicit sources, compared to 27% who were known to be receiving prescribed methadone, compared to (PR = 2.7, 95% CI = 1.8 - 4.2).

Overall, it appears that methadone-related deaths are more likely to arise from illicit than licit methadone.

1.2 Anti-depressants

Anti-depressants, alone and in combination with other drugs, were implicated in 308 cases. Of these, 74% were known to be receiving prescribed anti-depressants at the time of their death, compared to 26% who may have used drugs prescribed for others (PR = 2.9, 95% CI = 2.4 - 3.5).

Anti-depressants alone were implicated in 58 cases. Of these, 71% were known to be receiving prescribed anti-depressants, compared to 29% who may have used drugs prescribed for others (PR = 2.4, 95% CI = 1.6 - 3.7).

Those receiving prescribed anti-depressants were significantly more likely to have that class of drug implicated in their death, either in combination or as the sole drug, compared to those who had apparently used drugs prescribed to others.

Table 4: Prescribed psychoactive medication, np-SAD cases, 2007

Drug category	Number (%) of cases on prescribed psychoactive medication	Number (%) of cases where same drug was implicated in death
Total	811 (100.0)	
Amphetamines	2 (0.2)	1 (50.0)
Anti-depressants	374 (46.1)	199 (53.2)
Anti-epileptics	77 (9.5)	21 (27.3)
Anti-psychotics	173 (21.3)	45 (26.0)
Heroin/morphine	28 (3.5)	23 (82.1)
Hypnotic/sedatives	328 (40.4)	128 (39.0)
Methadone	128 (15.8)	86 (67.2)
Other opiates/opioid analgesics	168 (20.7)	104 (61.9)
Note: Column totals may sum to more than 100% since more than one substance may be prescribed to an individual and more than one substance may be implicated in a death.		

1.3 Other opiates/opioid analgesics

Other opiates/opioid analgesics (e.g. dihydrocodeine, dextropropoxyphene) alone and in combination with other drugs, were implicated in 365 cases. Of these, 72% may have obtained the drug by other means, compared to the 28% who were known to be receiving prescribed opiate/opioid analgesics prior to their death (PR = 2.5, 95% CI = 2.1 - 3.0).

Other opiate/opioid analgesics alone were implicated in 63 cases. Of these, the drugs were apparently obtained by other means in 63% of cases, compared to being prescribed in 37% of cases (PR = 1.7, 95% CI = 1.2 - 2.5).

1.4 Hypnotics/sedatives

Hypnotic/sedatives, alone and in combination with other drugs, were implicated in 309 cases. Of these, 68% may have obtained them illicitly, compared to the 32% who were known to be receiving a prescription for this class of drug (PR = 2.2, 95% CI = 1.8 - 2.6).

Twenty cases had hypnotic/sedatives alone implicated in their death, of whom 14 (70%) had received the drug on prescription, compared to 6 (30%) who may have obtained it illicitly (PR = 2.3, 95% CI = 1.1 - 4.8).

In summary, there was a tendency that those prescribed hypnotics/ sedatives were more likely to have that class of drug implicated in fatality if only one substance was implicated.

2. Gender and underlying cause(s) of death

Males were significantly more likely than females to die of accidental poisoning (66% vs. 50%) (PR = 1.3, 95% CI = 1.2 - 1.5). Females, by contrast, were significantly more likely than males to die of intentional self-poisoning (22% vs. 11%) (PR = 2.0, 95% CI = 1.6 - 2.6), and poisoning of undetermined intent (19% vs. 10%) (PR = 2.0, 95% CI = 1.5 - 2.6).

3. Gender and manner of death

A similar pattern was revealed in respect of manner of death. Males were more likely than females to die an accidental death (73% vs. 58%) (PR = 1.3, 95% CI = 1.1 - 1.4). Conversely, females were more likely than males to die of suicide (24% vs. 14%) (PR = 1.7, 95% CI = 1.4 - 2.2), or a death where the manner was undetermined (15% vs. 10%) (PR = 1.6, 95% CI = 1.2 - 2.1).

4. Age and underlying cause(s) of death

Those aged less than 45 years were more likely than older cases to die of accidental poisoning (80% vs. 45%) (PR = 1.8, 95% CI = 1.6 - 2.0). Those aged 45 years or over, by contrast, were more likely than younger cases to die of intentional self-poisoning (28% vs. 7%) (PR = 3.8, 95% CI = 2.9 - 4.9), and

poisoning of undetermined intent (15% vs. 11%) (PR = 1.4, 95% CI = 1.1 - 1.9).

5. Age and manner of death

Cases aged less than 45 years were more likely than older cases to die accidentally (76% vs. 53%) (PR = 1.4, 95% CI = 1.3 - 1.6). Conversely, those aged 45 years or over were more likely than younger cases to die intentionally (30% vs. 11%) (PR = 2.8, 95% CI = 2.2 - 3.4), or in a manner that was undetermined (14% vs. 10%) (PR = 1.4, 95% CI = 1.0 - 1.9).

Table 5: Age and psychoactive drug implicated in death, np-SAD cases, 2007

Age-group (years)	Number (%) where drug was implicated	Drug category (alone or in combination) most frequently implicated in each age group
All ages	1,462 (100.0)	Heroin/morphine (48.4%)
Under 15	1 (0.1)	Anti-depressants & hypnotics/sedatives (1)
15–24	166 (11.4)	Heroin/morphine (44.0%)
25-34	415 (28.4)	Heroin/morphine (61.9%)
35-44	459 (31.4)	Heroin/morphine (54.7%)
45-54	253 (17.3)	Heroin/morphine (38.7%)
55-64	109 (7.5)	Anti-depressants (41.3%)
65 & over	59 (4.0)	Other opiates/opioid analgesics (45.8%)

6. Age and drug implicated in death

In cases aged 15-44 years, heroin/morphine (56%) was the most frequently mentioned drug contributing to fatality. In those aged 45 years and over, other opiates/opioid analgesics (36%) were mentioned most often (Table 5).

7. Gender and drug implicated in death

The pattern of drug-specific fatality is somewhat different in male and female cases.

Among males, the most frequently mentioned drugs were: heroin/morphine (54%); alcohol-in-combination (40%); other opiates/opioid analgesics (23%); methadone (20%), hypnotic/sedatives (20%); cocaine (17%); and anti-depressants (16%).

Furthermore, there is a higher proportion of cases of drug-specific fatality among males compared to females in respect of cannabis, ecstasy-type drugs and GHB.

Among female cases, the most frequently mentioned drugs were: anti-depressants (38%); other opiates/opioid analgesics (33%); alcohol-in-combination (32%); heroin/morphine (29%); hypnotic/sedatives (26%); methadone (21%); and cocaine (13%).

VI Drug abuse/dependence

Cases reported to np-SAD with a history of drug abuse/dependence (n = 794) were compared to those without such a history (n = 414) on the following variables: demography, location of death, underlying cause(s) and manner of death. Three hundred and thirty-one np-SAD cases (22%) were reported as "not known" with respect to history of drug abuse/dependence. These cases were excluded from further analysis.

1. Demography

In comparison with non drug abusers (NDAs: 65%), drug abusers/dependents (DAs: 82%) were more likely to be male (PR = 1.3, 95% CI = 1.2 - 1.4) and less than 45 years of age, 81% compared to 52% (PR = 1.6, 95% CI = 1.4 - 1.7). The median age at death for DAs was 36.2 years (semi-interquartile range = 6.6), while that for NDAs was 44.3 years (semi-interquartile range = 11.1) (Mann-Whitney U = 110,425 p< 0.0005).

2. Location of death

There was no significant difference between DAs (72%) and NDAs (67%) with respect to the location of their death. In both groups the majority died at home or in a defined residential address. Hospital deaths accounted for a lower proportion of DA deaths (19%) than those amongst NDAs (21%). A higher proportion of DAs (9%) died in temporary accommodation or in public places than NDAs (5%) (PR = 1.8, CI = 1.1 - 3.0).

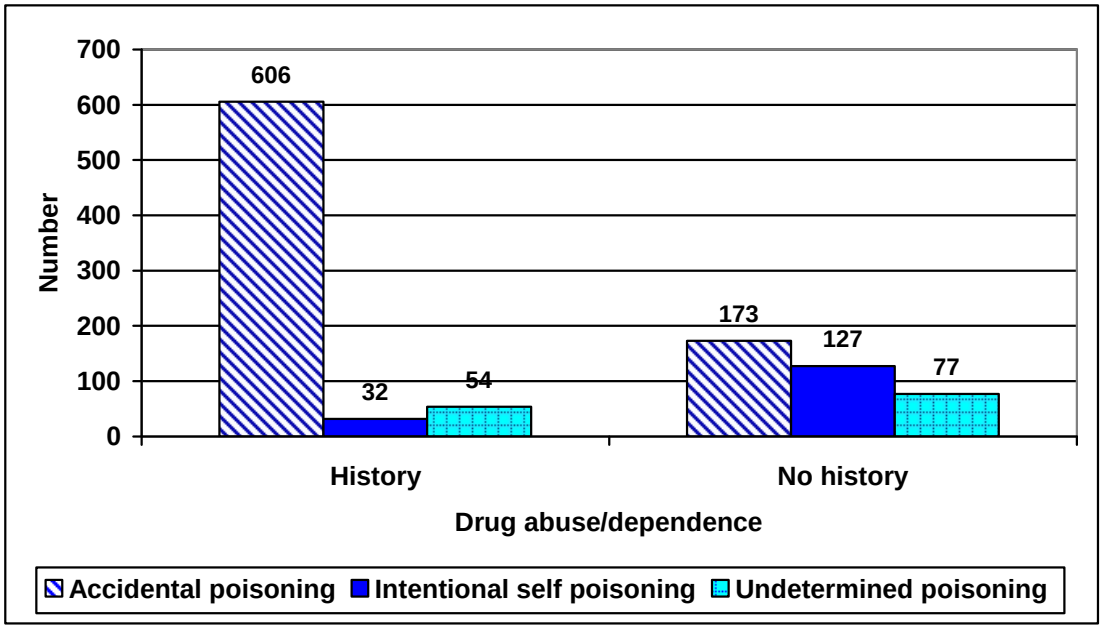
3. Underlying cause(s) of death

DAs were more likely than NDAs to die of accidental poisoning (76% vs. 42%) (PR = 1.8, 95% CI = 1.6 - 2.1; – Figure 8). NDAs, by contrast, were more likely than DAs to die of intentional self-poisoning (31% vs. 4%) (PR = 7.6, 95% CI = 5.3 - 11.0), and poisoning of undetermined intent (19% vs. 7%) (PR = 2.7, 95% CI = 2.0 - 3.8).

4. Manner of death

A similar pattern is exhibited with regard to manner of death. DAs were more likely than NDAs to die an accidental death (82% vs. 48%) (PR = 1.7, 95% CI = 1.5 - 2.1). Conversely, NDAs were more likely than DAs to die of suicide (33% vs. 7%) (PR = 4.8, 95% CI = 3.6 - 6.4), or a death where the manner was undetermined (17% vs. 7%) (PR = 2.5, 95% CI = 1.8 - 3.5).

Figure 8: Principal underlying cause(s) of death by drug abuse/dependence history, np-SAD cases, 2007



VII np-SAD drug-related deaths in 2006 reported in 2007/8

Profile of cases

A further 307 inquest reports were received from coroners in 2007/8 on deaths occurring in 2006, giving an updated total number of deaths in 2006 of 1,673. Demographic details and a summary of principal drugs implicated in death are presented below. The distribution of deaths according to coroners' jurisdictions is summarised in Annex AR2.

1. Demography

The majority of cases were male (77%). The median age at death was 35.1 years (semi-interquartile range – 7.9), with 79% being under the age of 45 years. Where ethnicity was known, 94.3% were White, 2.2% Black, 2.2% Asian, and 1.3% Other. Approximately 43% of cases were unemployed and 41% of cases were living with others at the time of their death (Table 6). Where history of drug abuse or dependence was known, 74% had such a history.

Table 6: Demographic variables, additional 2006 np-SAD cases

Variable	Category	Number (%) of np-SAD cases in 2006 reported in 2007/8
Total		307 (100.0)
Gender	Male	237 (77.2)
	Female	70 (24.8)
Employment Status	Unemployed	129 (42.0)
	Employed	100 (32.6)
	Childcare/houseperson	13 (4.2)
	Student	6 (2.0)
	Retired/sickness/invalidity	19 (6.2)
	Other	4 (1.3)
	Not known	36 (11.7)
Living Arrangements	Alone	109 (35.5)
	With others	126 (41.0)
	No fixed abode	10 (3.3)
	Other	19 (6.2)
	Not known	43 (14.0)

2. Location of death

The majority of cases (67%) died at a defined residential address (e.g. the deceased's home address or other private residential address), 19% died in hospital and 14% died elsewhere (e.g. in a public place).

3. Underlying cause(s) of death

The proportions of ICD-10 categories of underlying cause of death were as follows:

- Accidental poisoning (X40-X47): 56.7%
- Intentional self-poisoning (X60-X67): 13.4%
- Poisoning of undetermined intent (Y10-Y14): 13.0%
- Other and unknown causes: 16.9%

4. Manner of death

The cause of death is considered to have arisen in these cases as follows:

- Natural: 2.9%
- Accidental: 69.7%
- Suicidal: 17.3%
- Homicidal: 0.3%
- Undetermined: 9.4%
- Unclassified/not specified: 0.3%

5. Substances implicated in death

The principal psychoactive substances implicated were: heroin/morphine (46%), alcohol in combination with other drugs (41%), other opiates/opioid analgesics (25%),

hypnotics/sedatives (24%), anti-depressants (22%), methadone (17%) and cocaine 13%.

Heroin/morphine as the sole implicated drug accounted for 15% of deaths, anti-depressants 4%, cocaine 4% and methadone 4% of deaths. The breakdown of psychoactive substances implicated in death is given in Table 7.

Table 7: Psychoactive substances implicated in death, additional 2006 np-SAD cases

Drug category	Number (%) of cases where no other substance implicated	Number (%) of cases where drug implicated
Total	284 (100.0)	284 (100.0)
Alcohol	-	117 (41.2)
Amphetamines	2 (0.7)	6 (2.1)
Anti-depressants	12 (4.2)	63 (22.2)
Anti-epileptics	1 (0.4)	3 (1.1)
Anti-psychotics	0 (1.0)	12 (4.2)
Cannabis	1 (0.4)	8 (2.8)
Cocaine	12 (4.2)	38 (13.4)
Ecstasy-type drugs	2 (0.7)	11 (3.9)
GHB	0 (0.0)	0 (0.0)
Heroin/morphine	43 (15.1)	130 (45.8)
Hypnotics/sedatives	4 (1.4)	69 (24.3)
Methadone	10 (3.5)	47 (16.5)
Other opiates/opioid analgesics	7 (2.5)	71 (25.0)
Note: Column totals may sum to more than 100% since more than one substance may be implicated in a death.		

VIII Changes between 2006 and 2007

The following section compares deaths in 2007 with those that occurred in 2006 (including updated data). The sources of information are the same for both years, i.e. cases reported using the np-SAD data collection form. Figures for 2007 (and 2006, to a lesser extent) can be expected to increase as further inquests are completed and the results notified to the Programme. The figures for 2007, therefore, cannot be compared directly with those in previous np-SAD publications.

1. Demographic characteristics

The figure reported on here for deaths in 2007 is 1,539, a decrease of about 8% from the previous year (1,673). As more data are received for 2007 this gap will narrow. The demographic profile of cases remained stable in 2007 with no significant changes in age, gender, ethnicity, and employment status distributions. However, there was a small increase in the median age at death, from 37 to 38 years, with a consequent reduction (from 72% to 71%) in the proportion aged under 45 years. There was an increase in the proportion living alone (from 41% to 45%). A small decline was observed in the proportion of deaths occurring in hospital (from 22% to 19%), and in the proportion of cases with a history of drug abuse or addiction (from 67% to 66%).

2. Underlying cause(s) of death

The proportion of accidental deaths increased from 60% in 2006 to 63% in 2007. By contrast, poisonings of undetermined intent decreased from 15.8% to 11.8%; whilst intentional self-poisoning deaths remained unchanged at 13.2%.

3. Manner of death

The patterns observed for underlying cause(s) of death were echoed for the manner of death. The proportion of accidental deaths increased from 65.8% in 2006 to 69.3% in 2007 (PR = 1.1, 95% CI = 1.0 - 1.1), as did suicides – from 15.2% to 16.2%. Conversely, the proportion of undetermined deaths

decreased from 15.4% to 11.2% (PR = 1.4, 95% CI = 1.1 - 1.6). Natural deaths (2.5% - 2.5%), homicides (0.1% - 0.1%), and deaths unclassified/not specified (1.1% - 0.9%) remained stable.

4. Substances implicated in death

4.1 Multiple substances

Data on implicated drugs were available for 1,462 deaths occurring in 2007 (1,550 in 2006). Heroin/morphine remained the most frequently mentioned drug in 2007, having been implicated in 48% of deaths, slightly higher than in the previous year. There were increases both in the number and proportion of mentions of methadone, hypnotics/ sedatives, other opiates/ opioid analgesics, cocaine, cannabis, and for alcohol-in-combination (Table 8).

4.2 Single substance

There were significant changes between 2006 and 2007 in the proportions accounted for by individual drugs in fatalities related to a single substance, especially falls for heroin/morphine, methadone, and anti-depressants (Table 9).

Table 8: Changes in proportions of psychoactive substances implicated in multiple substance deaths, np-SAD cases, 2006-2007

Substance	2006 (N = 1,550)	2007 (N = 1,462)	Percentage Ratio (PR)	95% CI	Change (percentage points)
Alcohol-in-combination	33.9	37.9	1.1	1.0 - 1.2	+ 4.0
Amphetamines	3.4	3.8	1.1	0.8 - 1.6	+ 0.4
Anti-depressants	18.3	21.1	1.1	1.0 - 1.3	+ 2.8
Anti-epileptics	1.9	2.5	1.3	0.8 - 2.1	+ 0.6
Anti-psychotics	4.5	3.8	1.2	0.8 - 1.7	- 0.7
Cannabis	2.1	3.8	1.8	1.2 - 2.7	+ 1.7
Cocaine	11.2	16.3	1.5	1.2 - 1.7	+ 5.1
Ecstasy-type drugs	3.4	3.1	1.1	0.8 - 1.6	- 0.3
GHB	0.5	0.5	1.1	0.4 - 2.8	-
Heroin/morphine	45.9	48.4	1.1	1.0 - 1.1	+ 2.5
Hypnotic/sedatives	16.7	21.1	1.3	1.1 - 1.5	+ 4.4
Methadone	17.0	20.2	1.2	1.0 - 1.4	+ 3.2
Other opiates/ opioid analgesics	22.6	25.0	1.1	1.0 - 1.3	+ 2.4
Note: Column totals may sum to more than 100% since more than one substance may be implicated in a death.					

Table 9: Changes in proportions of psychoactive substances implicated in single substance deaths, np-SAD cases, 2006-2007

Substance	2006 (N = 1,550)	2007 (N = 1,462)	Percentage Ratio (PR)	95% CI	Change (percentage points)
Amphetamines	1.0	0.5	1.9	0.8 - 4.4	- 0.5
Anti-depressants	5.2	4.0	1.4	1.0 - 1.9	- 1.2
Anti-epileptics	0.6	0.3	2.1	0.7 - 6.9	- 0.3
Anti-psychotics	1.3	0.6	2.1	1.0 - 4.6	- 0.7
Cannabis	0.2	0.2	1.1	0.2 - 5.2	-
Cocaine	2.7	2.7	1.0	0.7 - 1.5	-
Ecstasy-type drugs	1.2	0.7	1.7	0.8 - 3.7	- 0.5
GHB	0.1	0.2	3.2	0.3 - 30.5	+ 0.1
Heroin/morphine	17.9	13.8	1.3	1.1 - 1.5	- 4.1
Hypnotic/sedatives	1.3	1.4	1.1	0.6 - 2.0	+ 0.1
Methadone	5.4	4.3	1.3	0.9 - 1.7	- 1.01
Other opiates/ opioid analgesics	5.0	4.3	1.2	0.8 - 1.6	- 0.7

5 Deaths per 100,000 population

5.1 Changes in jurisdictions with highest rates in 2006

The following jurisdictions reported annual drug-related death rates of 10/100,000 or higher in 2006: Blackpool & the Fylde (19.4); Brighton & Hove (17.8); Jersey (12.3); Dumbarton (11.3); and Newcastle-upon-Tyne (10.1). Of these five areas, Dumbarton showed a significant increase and Brighton & Hove a slight increase, whilst the other areas showed significant declines.

5.2 Changes in jurisdictions with lowest rates in 2006

The following jurisdictions reported annual drug-related death rates of less than 1 per 100,000 population in 2006: Cardiff & Vale of Glamorgan (0.00); City of London (0.00); Guernsey (0.00); Herefordshire (0.00); Isles of Scilly (0.00); North Lincolnshire & Grimsby (0.00); South Shropshire (0.00); Stamford (0.00); Wiltshire (0.2); Inner West London (0.3); South & West Cambridgeshire (0.3); North Yorkshire Eastern (0.5); Northamptonshire (0.6); Nottinghamshire (0.7); Darlington & South Durham (0.9); and Powys (0.9). Of these, the City of London, Isles of Scilly, South Shropshire, and Wiltshire remained unchanged. Powys was the only area to show a decline. The rest showed some increases, the most evident being: Boston & Spalding (+759%); Northamptonshire (+667%); South & West Cambridgeshire (+667%). North Lincolnshire & Grimsby (+310%); Inner West London (+300%); Herefordshire (+200%); and Guernsey (+190%).

5.3 Jurisdictions with highest rates in 2007

The following jurisdictions reported annual drug-related death rates higher than 10/100,000 in 2007: Dumbarton (20.6); Brighton & Hove (18.8); Blackpool & the Fylde (14.9); and Peterborough (10.1). Of these four areas, two (Dumbarton and Peterborough) showed a significant increase over 2006, whilst Brighton & Hove exhibited only a small increase. There was a significant decline in Blackpool & the Fylde.

5.4 Jurisdictions with lowest rates in 2007

The following jurisdictions reported annual drug-related death rates of less than 1/100,000 in 2007: Wiltshire (0.2); Gateshead & South Tyneside (0.4); North Yorkshire Eastern (0.4); Swansea (0.5); Wolverhampton (0.5); Essex & Thurrock (0.6); Gloucestershire (0.6); Knowsley, St Helens & Sefton (0.6); Warwickshire (0.7); Cardiff & Vale of Glamorgan (0.8); Black Country (0.9); South Manchester (0.9); and Stamford (0.9). The following areas reported that there had been no relevant cases: Ceredigion; City of London; Isles of Scilly; Powys; and South Shropshire.

IX Commentary

General patterns

This is the ninth annual report produced by the *national programme* on Substance Abuse Deaths. This annual report is different from the semi-annual surveillance reports in that it reports on deaths that actually occurred in 2007, even where inquests (or other investigations) were completed in 2008. The report provides useful information that continues to assist policy makers, such as the Department of Health and the Devolved Administrations, to assess the impact of service provision and other interventions.

The demographic profile of np-SAD cases remains consistent with last year's report. The majority of cases were males (77%), under the age of 45 years (71%), and White (95%). Where the information was available, at least 66% of the sample was drug abuser/ dependent, as defined by the Programme.

This review is different to those in previous years in respect of its geographical coverage. As indicated earlier, information on individual Scottish cases is more comprehensive. This year, as in 2006, the Northern Ireland Statistics and Research Agency (NISRA) have provided data on drug-related poisoning deaths, registered by the General Register Office for Northern Ireland, up to the end of 2007.

Annex AR4 provides information on the rates per 100,000 population (aged 16 and over) for np-SAD cases in 2007 broken down by DAAT area of usual residence and by place of death.

Dumbarton recorded the highest annual death rate (20.6/100,000 population) in 2007. Brighton & Hove (18.8) and Blackpool & the Fylde (14.9) recorded the second and third highest annual death rates in 2007, respectively. Peterborough (10.1) also had a relatively high rate.

Ceredigion (0.0), the City of London (0.0), the Isles of Scilly (0.0), Powys (0.0), and South Shropshire (0.0) recorded the lowest death rates in 2007.

On the whole, the present annual report has seen a 13% increase in the number of DRDs reported to the np-SAD compared to the number reported in last year's report.[2] Although the compliance rate (93%) of coroners is higher than last year, the observed rise is likely to be real rather than a reflection of improved reporting rates by some coroners. This is borne out by the fact that the average number of cases per area increased in 2007. Further support for this being a real increase can be derived from the fact that the number of drug poisoning and drug misuse deaths registered in England and Wales also rose between 2006 and 2007 by 2.7% and 2.2% respectively (ONS, 2008). There was also a substantial increase reported in Scotland using a number of different definitions (GROS, 2008).

The proportion of deaths due to poisoning of undetermined intent declined by 4 percentage points in 2007. Most deaths (63%) were due to accidental poisoning. Over recent years there has been a trend towards more substances, including alcohol, being implicated in deaths. However, in the last year there appears to have been a major shift in this direction - with a corresponding decline in mono-valent deaths. Whereas in 2006 the proportion of deaths accounted for by one substance was 44% in 2006 this had fallen to 33% by 2007. The proportion of fatalities related to alcohol-in-combination increased from 34% to 38% over this period.

Fatalities related to the consumption of most illicit drugs have shown an increase. There was an increase in the proportion of deaths involving opiates and synthetic opioids in 2007, following a decrease for deaths involving heroin/morphine in 2006.

Methadone

A recurrent theme in the np-SAD annual reports has been deaths due to methadone. The number of such fatalities continues to rise (from 159 in 2004 to 295 in 2007), as has the proportion of all deaths in which it is implicated (from 12.4% to 20.2% over the same period). Although the number of deaths in which methadone was the sole drug mentioned reported to the Programme declined in 2007, the figures still remain significantly high for a substance which is primarily used in substitution treatment. Diversion continues to be an important feature of methadone deaths, in that in up to 70% of such cases methadone prescribed for one individual has been consumed by another person.

The UK experience is not unique, there has been an increasing number of deaths in North America involving the misuse of prescribed opioids, particularly methadone, oxycodone and to a lesser extent fentanyl (Hull et al, 2007; Baker et al, 2008; Fingerhut, 2008; Jones et al, 2008). These findings underline the paradox that whilst the wider provision of and accessibility to opioid maintenance treatment reduces the risk of death, such drugs are dangerous when used inappropriately, especially with other substances.

Opiate and opioid-dependent populations have very elevated mortality rates (Ferri et al, 2007; Jönsson et al, 2007; Smyth et al, 07; Bauer et al, 2008; Bloor et al, 2008; Pavarin, 2008). The risk of dying is reduced substantially for those who are retained in treatment (Clausen et al, 2008; Gibson et al, 2008). However, the risk increases again for those leaving treatment prematurely, and for those completing detoxification treatment or prison sentence, especially during the first month (Davoli et al, 2007; Farrell and Marsden, 2008). The increased chance of dying in the period immediately following treatment highlights the need for continual health education of drug users and the implementation of targeted relapse and overdose death prevention programmes, where these are not already in place (Davoli et al, 2007; Shah et al, 2008).

2 The number of deaths in England that occurred in 2007 and was reported to the Programme which meets the criteria used for monitoring the Government's drug strategy number 1,206. This is about 14% higher than the corresponding number for 2006 (1,059).

Opioid analgesics

Sandilands and Bateman (2008) found that if the reduction in Scottish poisoning deaths associated with co-proxamol was extrapolated to the whole of the UK at least 300 lives have been saved following the phased withdrawal of co-proxamol over the three-year period January 2005 to December 2007 (Duff, 2005).

This reduction is also evident in np-SAD data: from 2003 to 2007 the proportion of cases involving co-proxamol or dextropropoxyphene fell from 11.3% to 2.0% of all cases where a psychoactive substance was implicated in death. During the same period the proportion accounted for by tramadol rose from 2.3% to 3.8%. This supports our previous suggestion that tramadol is emerging as a replacement for co-proxamol.

Other prescribed medications

There appears to have been a small decrease in deaths directly caused by anti-psychotics, but increases in most of the traditionally prescribed psychoactive medications, e.g. anti-depressants, hypnotics/sedatives, and other opiates/opioid analgesics. The results for anti-psychotics and anti-depressants are in line with the findings reported by Flanagan (2008).

Cocaine

The fatal consequences of widespread consumption of cocaine in the UK continue to become more evident (see below for a more detailed discussion). Whilst the number of cases involving cocaine notified to np-SAD was 128 in 2004, it had nearly doubled to 239 in 2007. Over the period, the proportion of cases involving cocaine increased from 10% to 16%, including one unusual case where death occurred following consumption of cocaine powder mixed with water.

Amphetamines

The proportion of deaths in which amphetamines and cannabis were implicated rose, whereas that for ecstasy-type drugs fell. The number of deaths in which amphetamine was implicated has risen in each of the last three years, standing at 55 in 2007 (22 in 2004). Last year we noted that there was a possibility that such an increase may echo growing concern about the increasing use of methylamphetamine ('crystal meth') in the UK. To date, there were 6 cases in both 2006 and 2007 where this drug was reported in the post mortem toxicology to the Programme. In one of the 2007 cases, death was due to mixed drug poisoning including methylamphetamine. In other cases it seems likely that the presence of the substance was associated with the use of ecstasy. Given the presence of methylamphetamine amongst some drug-using populations in the UK (Bolding et al, 2006; Wood et al, 2008), these consumers need to be informed of the potential harms caused by consuming the drug especially with other substances (Kaye et al, 2008).

Piperazines

The np-SAD is aware of at least 12 deaths in England and Wales (there have been none in Scotland or Northern Ireland) up to the end of 2007 where piperazines have been found post-mortem; one of these has yet to go to inquest. Details for three of the cases are given in the literature review above (Elliot and Smith, 2008). For the 11 cases occurring in 2006-7 reported to np-SAD, benzylpiperazine (BZP) and 3-trifluoromethylphenylpiperazine monohydrochloride (TFMPP) were found in 6 cases; BZP in 4 cases, and chlorophenylpiperazine (CPP) in 1 case. In two cases piperazines (BZP; BZP and TFMPP) were mentioned – along with other substances - specifically as the cause of death. In a further case CPP was included in the substances where the death was described as multiple mixed drug intoxication.

Populations at risk of premature death

The np-SAD surveillance programme, together with the literature reviewed above, has identified a number of populations with a higher risk of dying prematurely. These populations include:

- Those with mental illness who may commit suicide or homicide;
- Pregnant females, especially those with psychiatric problems;
- Polysubstance users, particularly those using alcohol and/or cocaine.
- Those finishing/leaving treatment or prison in the period immediately following their release
- Those who have recently commenced injecting drug use
- Young female injecting drug users, especially those with HIV or those engaged in sex work
- Those with long injecting careers
- Those who are homeless or 'roofless'

Conclusions

A number of the studies reviewed above have demonstrated that opioid maintenance treatment can play a role in reducing the rates of excess mortality among opioid-using populations compared to the general populace. However, there are reports of greater involvement of prescription drugs, especially opioids, in overdose fatalities.

The findings of the research outlined above suggest that the likelihood of death for a number of other at-risk populations could be lessened through being in a suitable treatment programme. There is a need to make sure that interventions are aimed at these populations.

Some of these issues also emerge from the data collected by np-SAD, and highlight the important role of surveillance in monitoring the ever-changing evolution of the drugs phenomenon. Continued vigilance is needed in respect of the role of prescribed and 'Over the Counter' medications in fatalities, e.g. the increased use of tramadol. If considered appropriate, further regulation or legislation may be required.

The surveillance role of the Programme in identifying new problems can be illustrated by reference to the fact that the misuse of fentanyl was reported in last year's annual report. The emergence of toxicological reports mentioning methylamphetamine and piperazines have been discussed in this year's commentary. By identifying changes in drug use and associated mortality elsewhere, the Programme is able to look out for and monitor developments in the UK.

Mortality patterns can change substantially and rapidly and large-scale cohort studies are needed in the UK to provide information about overdose and other causes of death that drug users face. There has been no investment in large-scale longitudinal studies that can help interpret mortality statistics since the closure of the Home Office Addicts Index over a decade ago. This need is also evident in other European countries (Morgan et al, 2008).

X A closer look – nature, extent and pattern of cocaine-related mortality

Introduction

Cocaine is one of the most commonly used illicit substances in England and Wales with a lifetime prevalence rate of 2.6 % among those aged 16-59 years (Murphy & Roe, 2007). In EU member states and Norway, the corresponding rate in those aged 15-64 years is about 4% (EMCDDA, 2007). In the UK, cocaine and crack are classified as Class A drugs under the Misuse of Drugs Act 1971.

Cocaine (benzoylmethyl ecgonine) is obtained from the coca plant (*Erythroxylon coca*) which is widely grown in western South America (principally Bolivia, Colombia and Peru). Traditional use of the coca plant has been associated with Andean Indians who chew coca leaves for its stimulant properties. The two most common forms of cocaine in the UK are cocaine hydrochloride (HCl) and crack. Cocaine HCl is the powder form, often administered nasally, orally and by injection. Another form of cocaine is the 'free-base' produced by dissolving cocaine HCl in water and ammonia followed by ether. This mixture results in two layers – purer cocaine as the upper layer. Cocaine is extracted by evaporating the solvent, leaving the lower layer which is the 'free-base'.

'Crack' is a form of cocaine free-base manufactured through a less inflammable method. Cocaine HCl solution is mixed with sodium bicarbonate and the solution heated. The insoluble base floats on the solution (Warner, 1993). The dry form of the insoluble base is termed 'crack'. The most common form of crack administration is by smoking. This mode of delivery is very efficient, producing euphoria within 10 seconds, compared to 20 seconds in injectable cocaine HCl and about 5 minutes through nasal administration (Lipton et al, 2000). Rapid absorption of smoked crack and relatively low street price compared to cocaine HCl has made this drug very appealing to young people. For instance, in England and Wales, lifetime prevalence of crack use (1.4%) in those aged 16-24 years is higher than that for the entire population (1%) studied (Murphy and Roe, 2007). A survey of clubbers in the

UK between 1999-2003 gives lifetime prevalence rates of cocaine use of 73-80% and 13-16% for crack use (McCambridge et al (2005). The respondents reported current use prevalence of 28 to 41% for cocaine and 1.2 to 2.4% for crack.

There is an upward trend in the number of cocaine-related deaths in the UK; the most recent figures for mentions of cocaine (including crack) on death certificates in Great Britain show these to be at record levels (GROS, 20908; ONS, 2008). Over a 15-year period, Schifano and Corkery (2008) reported nearly a 40-fold increase in the number of deaths in the UK where cocaine/crack was mentioned; from five in 1990 to 188 in 2004. During the same period, the price of street cocaine fell significantly from £87/g of powder in 1990 to £52/g in 2004 while that of 0.2g of crack declined from £25 to £19. Inevitably, the number of problematic cocaine users presenting to treatment in England increased four-fold during this period.

Surprisingly, there was no statistically significant correlation between the number of cocaine-related deaths and average purity of police and custom seizures. In contrast, increase in the number of crack-related deaths had a statistically significant negative correlation with the average purity of police seizures, suggesting that the increase in the number of cocaine-related fatalities was more likely due to indirect causes, e.g., polysubstance toxicity, effects of adulterants, underlying psychopathology, etc. In summary, it would seem that price, availability and, to a lesser extent, purity have significantly influenced the trend in cocaine-related fatalities.

Pharmacodynamics and pharmacokinetics of cocaine

The pharmacodynamic properties of cocaine are multifaceted; for a good overview see EMCDDA (2007). Cocaine produces euphoria by increasing synaptic levels of dopamine in mesolimbic brain regions (Kuhar et al, 1991). This property has established cocaine as a drug with high abuse liability. In the medium and long term, this action leads to psychological dependence and in extreme cases to the development of seizures. Cocaine's potential for producing seizures is also associated with its action as a serotonin re-uptake inhibitor, where serotonin accumulation induces intense central nervous system (CNS) stimulation (Lipton et al, 2000).

Cocaine is also known to inhibit presynaptic noradrenalin and dopamine re-uptake, as well as the action of monoamine oxidase at synapses. This action results in enduring sympathetic activation that manifests as increased vasoconstriction, increased cardiac contractility, increased vasospasm, hypertension, hyperthermia, hypoglycaemia and mydriasis (White and Lambe, 2003). Cocaine's ability to increase platelet adherence and promote coagulation contributes to its infarct potential (He et al, 1994). Taken together, cocaine toxicity can result in a complex symptomatology that affects major internal organs and systems of the body.

Often, cocaine use is closely associated with the use of other substances, mainly alcohol, opioids, cannabis and other stimulants. Also, many cocaine users are cigarette smokers. Co-ingestion of substances often results in additive or synergistic effects. For instance, combined administration of cocaine and tobacco can accentuate the harmful effects of cocaine on myocardial supply-demand balance, resulting in cardiovascular complications (Afonso et al, 2007; Moliterno et al, 1994). Also, cocaine interacts with alcohol in the liver to form coca-ethylene. This compound, considered to be more hazardous than cocaine, is known to block the re-uptake of dopamine and contribute to heightened cardiovascular complications commonly associated with cocaine use (Afonso et al, 2007). Studies of co-ingestion of cocaine and heroin ("speedball") have revealed increases in cardiovascular and subjective effects that were below the threshold of an additive model of drug interaction (Foltin and Fischman, 1992). Rather, the continued use of speedball among illicit drug users is considered to be largely motivated by the need to reduce the 'crash' from cocaine intoxication (Guzam and Ettenberg, 2004). However, this does not make speedball toxicity less hazardous than distinct cocaine or heroin toxicity.

Potential fatalities arising from direct toxicity

The cumulative effects of cocaine, even in small doses, can result in complications (Karch, 2002). Therefore, the minimum and lethal doses of cocaine are unspecified, indicating an idiosyncratic pattern of complications and eventual fatality. System–specific complications of cocaine ingestion and toxicity are summarised below. Death can

occur from a single complication or from a combination of complications.

CNS**:** The most commonly reported complications in this category include headache, stroke, transient neurological deficits, subarachnoid haemorrhage, seizures, toxic encephalopathy and coma. Also, sequelae of chronic cocaine use can include dystonia, tardive dyskinesia, chorea, and akathisia (Glauser & Queen, 2007; Boghdadi & Henning, 1997; Benowitz, 1998)

Cardiovascular system: Common complications in this category include hypertension, arrhythmias, myocarditis, myocardial ischemia and infarction, and shock (Benowitz, 1998; Knuepfer, 2003; White and Lambe, 2003).

Respiratory system: The following respiratory complications have been reported – pulmonary oedema, pulmonary haemorrhage, pulmonary infarct, pneumomediastinum, respiratory arrest, and pneumothorax (Benowitz, 1998; White & Lambe, 2003). Smoking of crack or free-base cocaine is known to result in thermal epiglottitis (Mayo-Smith and Spinale, 1997), and in severe acute exacerbation of asthma (Rubin and Neugarten, 1990; Rome et al, 2000). Crack smokers can also suffer from 'crack lung', a complication characterised by fever, chest pain, dyspnoea, hypoxemia, persistent diffuse alveolar infiltrates and respiratory failure (Forrester et al, 1990; Glauser and Queen, 2007).

Renal system: The main renal complications are acute renal failure, rhabdomyolysis and renal infarction (Glauser and Queen, 2007). Renovascular atherogenic damage has been reported in cases of cocaine-related death (Dipaolo et al, 1997).

Gastro-intestinal system: Common complications in this category include ischaemic gastritis, ulceration, infarction and hepatotoxicity (White and Lambe, 2003). Smoking of crack or free-base cocaine can also induce intestinal perforations (Muniz and Evans, 2001).

Indirect association with fatalities

The lifestyle associated with cocaine/crack use is a risk factor for premature mortality among cocaine users. The risks involved in funding cocaine/crack habits through illegal means, such as prostitution, burglary, violent offending drug trafficking, and gang involvement can be life threatening, accounting for a large proportion of cocaine-related homicides. Tardiff et al (2002) observed in a New York study that cocaine was implicated in the majority of drug-related homicides where the types of drugs implicated were known. Also, homicide committed by drug dealers is known to account for at least 30% of deaths among cocaine abusers (Tardiff et al, 1989, 1994, 1995).

Cocaine has been implicated in fatal road traffic accidents (RTAs). In a review of studies of fatal injuries from RTAs, Macdonald et al (2003) reported that the proportion of fatally injured drivers testing positive for cocaine ranged between 0.3% and 10%. In many of these studies other drug metabolites were detected at post-mortem, suggesting the deleterious effects of combined use of cocaine and other substances on driving.

Cocaine intoxication is known to sometimes lead to dysfunction in cerebral serotonergic neurotransmission that can manifest as excessive aggression and heightened suicidal tendency. Not surprisingly, the National Violent Death Reporting System in the US has observed that approximately 10% of toxicology tests of suicide victims in 13 states were positive for cocaine (Karch et al, 2006). Similarly, suicide accounts for about 5-10% of cocaine–related deaths (Tardiff et al, 1989; Darke et al, 2005).

Cocaine fatality is increasingly associated with body packing and body stuffing. 'Body packing' can be described as the act of swallowing or inserting into a body cavity, multiple small packages, such as condoms, containing illicit drugs for the purpose of smuggling across national borders or into prisons (Bulstrode et al, 2002). Those who engage in body packing are commonly referred to as 'mules'. 'Body stuffing' refers to the act of swallowing poorly wrapped packages of illicit drugs with a view to concealing them from law enforcement agents, usually during a drug raid (Havis et al, 2005; Norfolk, 2007).

The first fatality from body packing was reported by Suarez et al (1977). There has since been a significant increase in the detection of this practice (Klein et al, 2000; Koehler et al, 2005). This problem is also an issue in the UK (Ghodse et al, 2006:26; HM Revenue & Customs, 2007:37-8). One of the main risks of fatality related to body packing is

the rupture of the small packages in the gastro-intestinal (GI) tract which in turn results in cocaine overdose. In one of such cases, cocaine levels in cardiac blood post-mortem were relatively high (4.67mg/L) (Koehler et al, 2005). Cocaine toxicity occurs more rapidly in body stuffing due to poor or no packaging.

np-SAD data

Cocaine was found at post mortem or implicated in 350 deaths that occurred in 2007 that were notified to the np-SAD. Cocaine was implicated in 239 cases.

Where cocaine was implicated in combination with other psychoactive substances in deaths, the main substances involved were: heroin/morphine (92%); alcohol (59%); methadone (35%); hypnotics/sedatives (35%); other opiates (typically metabolites of heroin)/ opioid analgesics (35%); anti-depressants (21%); ecstasy-type drugs (13%); amphetamines (9%); and cannabis (8%). Crack was implicated in at least 4% of these cases, and coca-ethylene in 3%. The most common combinations with cocaine were: benzodiazepines and heroin/other opiates + (24.6%); heroin only (14.1%); alcohol (including coca-ethylene) (12.6%); heroin and alcohol (0.5%); benzodiazepines and heroin/other opiates and alcohol (8.0%); other drugs and opiates (8.0%); other opiates and alcohol (7.0%); and heroin and other opiates excluding alcohol (7.0%). About four-fifths (81%) of these cases related to males. The majority (88%) were aged less than 45 years when they died; with a median age of 35 years (range 18-60 years). Just under half (46%) lived with others and 41% lived alone. Nearly half (47%) were unemployed; 40% were employed. Most (61%) died at a residential address and 25% in hospital.

Cocaine was solely implicated in 40 cases (16.7% of cases where it was involved); of these, 33 (83%) were males. All but five cases were aged less than 45 years when they died; median age 33 years (range 17-59 years). Fourteen of the monovalent cases lived alone; 22 with others. Most (23 cases) were employed; 7 were unemployed. Twenty-three died at a residential address and 14 in hospital.

The underlying cause(s) of death were as follows: accidental poisoning (25); intentional poisoning (1); poisoning of undetermined intent (1); intentional hanging (4); hanging, intent undetermined; drug abuse (3); cardio-respiratory arrest (1); cardiomegaly (1); embolism and thrombosis of specified veins (1); hypertension (1); and intentional obstruction (1). The specific mechanisms of death given were: acute pulmonary oedema; cardiac arrhythmias; cardiac dysfunction; cardiac failure; cardio-respiratory arrest/failure (2); cerebrovascular event; cocaine associated cardiomegaly; compression of the neck; dissecting aortic aneurysm; hypoxic brain injury; hanging/suspension (2); intestinal obstruction; myocardial ischaemia, inflammation and fibrosis; poisoning, effects of, intoxication, toxicity, overdose of cocaine (21); and sudden death associated with cocaine use.

Concluding remarks

Cocaine is a dangerous drug that has deleterious effects on the body internal organs. The fact that the complications arising from cocaine ingestion are not dose-specific underscores the hazard in the use of this drug even in small doses. It is likely that the extent of cocaine-related deaths is underestimated given that the majority of cocaine fatalities are due to direct toxicity which may be mistaken for natural causes. It is therefore essential that doctors and emergency workers remain vigilant when dealing with medical complications and emergencies that are commonly associated with cocaine ingestion..

Annex AR1: np-SAD drug-related deaths by underlying cause(s), 2007

ICD-10	No. of cases (n = 1,539)	%	Description
			Accidental poisoning
X40	4	0.3	Non-opioid analgesics, antipyretics and anti-rheumatics
X41	77	5.0	Anti-epileptic, sedative-hypnotic, Anti-parkinsonism and psychotropic drugs, not elsewhere classified
X42	852	55.4	Narcotics and psychodysleptics (hallucinogens), not elsewhere classified
X43	1	0.1	Other drugs acting on the autonomic nervous system
X44	7	0.5	Other and unspecified drugs, medicaments and biological substances
X45	20	1.3	Alcohol
X47	4	0.3	Gases
			Intentional self-poisoning
X60	6	0.4	Non-opioid analgesics, antipyretics and anti-rheumatics
X61	86	5.6	Anti-epileptic, sedative-hypnotic, Anti-parkinsonism and psychotropic drugs, not elsewhere classified
X62	98	6.4	Narcotics and psychodysleptics (hallucinogens), not elsewhere classified
X63	2	0.1	Other drugs acting on the autonomic nervous system
X64	7	0.5	Other and unspecified drugs, medicaments and biological substances
X65	1	0.1	Alcohol
X67	3	0.2	Gases
			Poisoning of undetermined intent
Y10	1	0.1	Non-opioid analgesics
Y11	61	4.0	Anti-Parkinsonism drugs
Y12	113	7.3	Narcotics/psychodysleptics
Y14	3	0.2	Other/unspecified drugs
Y15	3	0.2	Alcohol
Y17	1	0.1	Other gases and vapours
			Mental & behavioural disorders due to psychoactive substance use
F10.2	2	0.1	Chronic alcoholism
F11.1	5	0.3	Harmful use - opioids
F11.2	1	0.1	Dependence - opioids
F14.0	1	0.1	Intoxication - cocaine
F14.1	2	0.1	Harmful use - cocaine
F18.0	1	0.1	Intoxication - volatile substances
F19.1	1	0.1	Harmful use – multiple other
F19.2	1	0.1	Dependence – multiple/other
Z72.2	5	0.3	Drug abuse, personal history
			Cardiovascular system – diseases, defects or conditions affecting
I10	1	0.1	Essential (primary) hypertension
I11	1	0.1	Hypertensive heart disease
I20-I25	6	0.4	Ischaemic heart diseases
I25.1	2	0.1	Atherosclerotic heart disease
I42.1	1	0.1	Obstructive hypertrophic cardiomyopathy
I50.9	2	0.1	Cardiac failure, unspecified
I51.7	2	0.1	Cardiomegaly
I51.8	2	0.1	Heart diseases
I70	2	0.1	Atherosclerosis
I74.0	1	0.1	Embolism/thrombosis
I80.2	1	0.1	Phlebitis & thrombophlebitis of deep vessel of lower extremity
I82.8	1	0.1	Embolism/thrombosis of other specified veins
I95.8	1	0.1	Other hypotension

ICD-10	No. of cases (n = 1,539)	%	Description
			Diseases of the respiratory system
J15.0	1	0.1	Pneumonia due to Klebsiella pneumoniae
J18.0	3	0.2	Bronchopneumonia
J80	1	0.1	Adult respiratory distress syndrome
J81	1	0.1	Pulmonary oedema or congestion
J96.0	1	0.1	Acute respiratory failure
J96.9	2	0.1	Respiratory failure/depression
R9.2	2	0.1	Cardio-respiratory failure/arrest
			Diseases of the liver
K56.6	1	0.1	Other & unspecified intestinal obstruction
K70	1	0.1	Alcoholic liver disease
K74.6	1	0.1	Other & unspecified cirrhosis of liver
			Injuries
S09.7	1	0.1	Multiple injuries of head
S09.9	8	0.5	Head injuries unspecified
S18	1	0.1	Decapitation/traumatic amputation at neck level
S20-S29	1	0.1	Injuries of the thorax
S36.0	1	0.1	Injury of spleen
V02	1	0.1	Pedestrian injured in collision with 2/3 wheeled motor vehicle
V44.5	1	0.1	Driver injured in collision with heavy transport work
V47.5	1	0.1	Driver injured in collision with fixed/stationary object
V48.5	1	0.1	Car driver injured in non-collision accident
V89.2	3	0.2	Person injured in unspecified motor vehicle accident – traffic
			Hanging
W76	6	0.4	Other accidental hanging and strangulation
X70	33	2.1	Intentional hanging
Y20	6	0.4	Hanging, undetermined intent
			Asphyxia
T17.9	3	0.2	Aspiration of gastric contents/foreign body in respiratory tract
T58	1	9.1	Asphyxiation from effects of carbon monoxide
T71	1	0.1	Asphyxiation
W79	3	0.2	Inhalation & ingestion of food – obstructing airway
			Drowning & submersion
W66	1	0.1	Whilst in bath tub
W69	1	0.1	Whilst in natural water
W70	1	0.1	After fall into natural water
W74	3	0.2	Unspecified
X71	1	0.1	Intentional drowning
			Other
A41.9	3	0.2	Septicaemia, unspecified
B24	1	0.1	Unspecified HIV
D74.9	1	0.1	Methemoglobinaemia
E10	1	0.1	Diabetic ketoacidosis
E87.2	2	0.1	Metabolic acidosis, exc. diabetic acidosis
G40.5	1	0.1	Epileptic seizure related to alcohol & drugs
G40.9	1	0.1	Epileptic seizures
G93.1	2	0.1	Brain damage, anoxic or hypoxic
L02.2	1	0.1	Groin abscess
T39.3	1	0.1	Poisoning, other non-steroidal anti-inflammatory
T40.4	1	0.1	Poisoning, synthetic opioid analgesic
T68	1	0.1	Hypothermia
X09	3	0.2	Inhalation of smoke and fumes
X85	1	0.1	Assault by drugs
W19	3	0.2	Unspecified fall
W26	1	0.1	Contact with knife, sword or dagger (stab wound)
R99	12	0.8	Unascertained

Where possible, causes of death have been grouped together in terms of the mechanisms of death. At present, although all causes of death on the death certificate (together with other information if available) are taken into consideration in classifying underlying cause of death, the principal cause of death is used here by np-SAD to allocate the ICD-10 code. In order to achieve a greater level of consistency, a hierarchical system was introduced for classifying the underlying cause of death using ICD-10 criteria for deaths involving multiple substances. Deaths that involve a combination of narcotics and other psychoactive drugs are coded as narcotic deaths. Where possible a code which specifies intentionality is used.

Annex AR2: np-SAD cases in 2007 by coroner's jurisdiction (16 years and over) and deaths in 2006 reported in 2007/8

Coroner's Jurisdiction & county district	np-SAD deaths Jan-Dec 2007	Annual death rate per 100,000 population [1]	np-SAD 2006 deaths reported in 2007/8 [2]
Queen's Household	0	0.00	0
ENGLAND			
AVON	12	1.38	6
BEDFORDSHIRE	16	3.38	1
BERKSHIRE	1	0.15	0
BUCKINGHAMSHIRE			
Buckinghamshire	16	4.10	1
Milton Keynes	7	3.90	0
CAMBRIDGESHIRE			
North & East Cambridgeshire	4	2.86	0
Peterborough	13	10.06	2
South & West Cambridgeshire	8	2.30	1
CHESHIRE	38	4.67	11
CORNWALL			
Cornwall	35	7.99	11
Isles of Scilly	0	0.00	0
CUMBRIA			
North & West Cumbria	10	4.52	4
South & East Cumbria	4	2.11	0
DERBYSHIRE			
Derby & South Derbyshire	22	4.56	2
North Derbyshire	14	4.26	0
DEVON			
Exeter & Greater Devon	11	2.58	2
Plymouth & South West Devon	9	3.73	19
Torbay & South Devon	6	3.02	0
DORSET			
Bournemouth, Poole & Eastern Dorset	39	9.76	0
Western Dorset	4	2.11	0
DURHAM			
Darlington & South Durham	4	1.79	2
North Durham	3	1.10	6
EAST SUSSEX			
Brighton & Hove	40	18.84	0
East Sussex	15	3.60	2
ESSEX			
Essex & Thurrock	7	0.64	5
Southend & South East Essex	16	5.91	0
GLOUCESTERSHIRE	3	0.63	0
GREATER MANCHESTER			
Manchester	22	5.89	9
North Manchester	13	2.71	2
South Manchester	5	0.88	0
West Manchester	15	2.37	0

Coroner's Jurisdiction & county district	np-SAD deaths Jan-Dec 2007	Annual death rate per 100,000 population [1]	np-SAD 2006 deaths reported in 2007/8 [2]
HAMPSHIRE			
Central Hampshire	6	2.15	0
North East Hampshire	7	2.22	0
Portsmouth & South East Hampshire	17	3.71	4
Southampton & New Forest	16	4.73	1
HEREFORDSHIRE	3	2.04	0
HERTFORDSHIRE	18	2.11	0
HUMBERSIDE			
East Riding & Hull	22	4.55	0
ISLE OF WIGHT	6	5.17	0
KENT			
Central & South East Kent	10	3.76	3
Mid Kent & Medway	8	1.93	0
North East Kent	-	-	-
North West Kent	-	-	-
LANCASHIRE			
Blackburn, Hyndburn & Ribble Valley	19	8.70	0
Blackpool & the Fylde	27	14.94	1
East Lancashire	13	6.68	2
Preston & West Lancashire	35	6.05	1
LEICESTERSHIRE			
Leicester City & South Leicestershire	-	-	11
Rutland & North Leicestershire	7	1.91	0
LINCOLNSHIRE			
Boston & Spalding	9	7.73	1
North Lincolnshire & Grimsby	8	3.12	1
Spilsby & Louth	11	8.47	0
Stamford	1	0.94	0
West Lincolnshire	13	5.95	1
LONDON			
City of London	0	0.00	0
Eastern London	10	1.14	16
Inner North London	40	5.82	2
Inner South London	51	6.12	0
Inner West London	9	1.19	0
Northern London	54	5.10	3
Southern London	19	2.27	0
Western London	51	4.89	18
MERSEYSIDE			
Knowsley, St Helens & Sefton	3	0.61	0
Liverpool	24	6.70	0
Wirral	15	5.98	4
NORFOLK			
Greater Norfolk	44	7.01	5
Great Yarmouth	1	1.29	0
NORTHAMPTONSHIRE	25	4.60	18
NORTHUMBERLAND			
North Northumberland	4	4.20	2
South Northumberland	-	-	-
NORTH YORKSHIRE			
North Yorkshire Eastern	2	0.97	1
North Yorkshire Western	2	0.70	0
York	-	-	-

Coroner's Jurisdiction & county district	np-SAD deaths Jan-Dec 2007	Annual death rate per 100,000 population [1]	np-SAD 2006 deaths reported in 2007/8 [2]
NOTTINGHAMSHIRE	11	1.26	0
OXFORDSHIRE	10	1.84	1
SHROPSHIRE			
Mid & North Shropshire	2	1.25	0
South Shropshire	0	0.00	0
The Wrekin	4	3.12	0
SOMERSET			
Eastern Somerset	7	3.23	0
Western Somerset	5	2.39	0
SOUTH YORKSHIRE			
South Yorkshire East	15	3.42	1
South Yorkshire West	27	4.37	1
STAFFORDSHIRE			
South Staffordshire	21	4.25	1
Stoke-on-Trent & North Staffordshire	11	2.93	8
SUFFOLK	35	6.07	0
SURREY	20	2.25	2
TEESSIDE			
Hartlepool	3	4.10	8
Teesside	25	6.64	12
TYNE & WEAR			
Gateshead & South Tyneside	1	0.36	0
Newcastle-upon-Tyne	10	4.44	1
North Tyneside	-	-	-
Sunderland	4	1.74	8
WARWICKSHIRE	3	0.70	0
WEST MIDLANDS			
Birmingham	30	3.15	4
Black Country	6	0.89	2
Coventry	9	3.65	0
Wolverhampton	1	0.53	5
WEST SUSSEX	34	5.37	0
West YORKSHIRE			
West Yorkshire Eastern	65	7.32	5
West Yorkshire Western	43	4.98	3
WILTSHIRE	1	0.19	2
WORCESTERSHIRE	6	1.32	0
WALES			
Bridgend & Glamorgan Valleys	12	3.51	4
Cardiff & the Vale of Glamorgan	3	0.83	2
Carmarthenshire	2	1.37	0
Central North Wales	-	-	-
Ceredigion	0	0.00	0
Gwent	16	3.55	1
Neath & Port Talbot	7	6.24	1
North East Wales	-	-	-
North West Wales	5	3.26	0
Pembrokeshire	6	6.28	0
Powys	0	0.00	0
Swansea	1	0.53	0
NORTHERN IRELAND			
Northern Ireland	23	1.67	30

Coroner's Jurisdiction & county district	np-SAD deaths Jan-Dec 2007	Annual death rate per 100,000 population (1)	np-SAD 2006 deaths reported in 2007/8 (2)
THE ISLANDS			
GUERNSEY	1	1.87	0
JERSEY	7	9.39	1
ISLE OF MAN	4	6.03	0
SCOTLAND			
Dumbarton	20	20.56	0

Please note that (0) refers to either no drug-related deaths or death rates of less than 0.01, whilst (–) indicates that no reports were submitted for the specific period from that jurisdiction or area. In subsequent reports these rates may increase as more inquests on deaths in 2007 are held and/or notified to the np-SAD. These rates should therefore be regarded as minimum rates.

(1) The rate per 100,000 population is based on published mid-year population estimates for local government administrative areas for the years in question. However, the areas covered by 23 of the coroners' jurisdictions in England and Wales as well as the area covered by the Procurators Fiscal region in Dumbarton, are not co-terminous with these boundaries and cover parts of such areas (see Appendix 1). Where administrative areas are split between jurisdictions, the estimated population has been divided into two or three as applicable. However, this means that the population of some coroners' jurisdictions may be either over- or under-estimated. It is necessary to make such assumptions until more accurate figures can be obtained or calculated.

(2) Notified after the publication of the np-SAD Annual Report, 2007.

(3) The amalgamations of the following coroner's jurisdictions during the period covered by this report mean that rates for the new areas have been calculated retrospectively based on published figures: High Peak and Scarsdale were merged to form North Derbyshire (1 February 2006); Gloucester and Cheltenham merged to form Gloucestershire (1 April 2006). In Norfolk, King's Lynn and Norwich & Central Norfolk to form Greater Norfolk (6 April 2007); in Cumbria, the three jurisdictions of North East Cumbria, Southern Cumbria & Furness, and Western Cumbria to form two new areas - North & West Cumbria and South & East Cumbria (1 May 2007).

Annex AR3: Changes in annual death rate per 100,000 population for np-SAD cases (16 years old and over), and annual percentage of all inquests held, 2006 and 2007

Coroner's Jurisdiction & county district	Number of np-SAD deaths 2006	Annual death rate per 100,000 population 2006 (1)	Annual % of all inquests held in 2006 (2)	Number of np-SAD deaths 20076	Annual death rate per 100,000 population 2007 (1)	Annual % of all inquests held in 2007 (2)
Queen's Household	0	0.00	0.00	0	0.00	0.00
ENGLAND						
AVON	19	2.30	2.72	12	1.38	2.07
BEDFORDSHIRE	24	5.22	12.83	16	3.38	8.00
BERKSHIRE	-	-	-	1	0.15	0.43
BUCKINGHAMSHIRE						
Buckinghamshire	13	3.40	8.50	16	4.10	10.32
Milton Keynes	7	4.09	7.07	7	3.90	5.34
CAMBRIDGESHIRE						
North & East Cambridgeshire	3	2.24	4.11	4	2.86	7.69
Peterborough	9	7.15	8.91	13	10.06	12.75
South & West Cambridgeshire	1	0.29	0.45	8	2.30	3.65
CHESHIRE	19	2.37	3.25	38	4.67	6.32
CORNWALL						
Cornwall	15	3.52	4.13	35	7.99	9.26
Isles of Scilly	0	0.00	0.00	0	0.00	0.00
CUMBRIA						
North & West Cumbria	25	11.35	-	10	4.52	7.14
South & East Cumbria	6	3.18	-	4	2.11	2.30
DERBYSHIRE						
Derby & South Derbyshire	15	3.19	6.94	22	4.56	8.76
North Derbyshire	17	5.26	5.92	14	4.26	4.96
DEVON						
Exeter & Greater Devon	22	4.54	5.99	11	2.58	3.63
Plymouth & South West Devon	19	7.98	4.90	9	3.73	3.45
Torbay & South Devon	5	2.56	3.25	6	3.02	6.12
DORSET						
Bournemouth, Poole & Eastern Dorset	30	7.56	18.99	39	9.76	24.53
Western Dorset	7	3.78	9.21	4	2.11	4.88
DURHAM						
Darlington & South Durham	2	0.90	1.59	4	1.79	4.17
North Durham	4	1.50	1.64	3	1.10	1.54
EAST SUSSEX						
Brighton & Hove	38	17.81	19.00	40	18.84	20.00
East Sussex	20	4.92	6.62	15	3.60	5.36
ESSEX						
Essex & Thurrock	17	1.60	3.53	7	0.64	1.50
Southend & South East Essex	11	4.18	12.36	16	5.91	14.29
GLOUCESTERSHIRE	11	2.36	3.36	3	0.63	0.92

Coroner's Jurisdiction & county district	Number of np-SAD deaths 2006	Annual death rate per 100,000 population 2006 (1)	Annual % of all inquests held in 2006 (2)	Number of np-SAD deaths 2007	Annual death rate per 100,000 population 2007 (1)	Annual % of all inquests held in 2007 (2)
GREATER MANCHESTER						
Manchester	10	2.80	1.78	22	5.89	4.89
North Manchester	10	2.09	2.99	13	2.71	3.92
South Manchester	20	3.51	3.58	5	0.88	1.11
West Manchester	14	2.21	3.00	15	2.37	2.82
HAMPSHIRE						
Central Hampshire	5	1.82	2.44	6	2.15	3.24
North East Hampshire	8	2.58	7.27	7	2.22	6.31
Portsmouth & South East Hampshire	15	3.38	4.70	17	3.71	6.20
Southampton & New Forest	24	7.37	12.44	16	4.73	8.94
HEREFORDSHIRE	0	0.00	0.00	3	2.04	3.57
HERTFORDSHIRE	19	2.27	5.38	18	2.11	4.90
HUMBERSIDE						
East Riding & Hull	13	2.77	4.98	22	4.55	10.33
ISLE OF WIGHT	8	6.90	10.96	6	5.17	6.12
KENT						
Central & South East Kent	14	5.36	8.00	10	3.76	6.76
Mid Kent & Medway	11	2.69	4.76	8	1.93	3.74
North East Kent	-	-	-	-	-	-
North West Kent	-	-	-	-	-	-
LANCASHIRE						
Blackburn, Hyndburn & Ribble Valley	12	5.58	5.56	19	8.70	8.19
Blackpool & the Fylde	35	19.39	24.31	27	14.94	18.75
East Lancashire	16	8.36	10.26	13	6.68	8.39
Preston & West Lancashire	14	2.47	3.37	35	6.05	8.10
LEICESTERSHIRE						
Leicester City & South Leicestershire	11	2.65	1.70	-	-	-
Rutland & North Leicestershire	8	2.25	3.98	7	1.91	6.36
LINCOLNSHIRE						
Boston & Spalding	1	0.87	1.61	9	7.73	13.85
North Lincolnshire & Grimsby	0	0.00	0.00	8	3.12	7.08
Spilsby & Louth	2	1.58	3.23	11	8.47	22.45
Stamford	0	0.00	0.00	1	0.94	3.23
West Lincolnshire	13	6.14	9.56	13	5.95	12.75
LONDON						
City of London	0	0.00	0.00	0	0.00	0.00
Eastern London	16	1.83	3.86	10	1.14	2.92
Inner North London	46	6.86	8.97	40	5.82	7.46
Inner South London	53	6.57	10.15	51	6.12	10.18
Inner West London	2	0.26	0.47	9	1.19	2.19
Northern London	29	2.74	6.18	54	5.10	13.67
Southern London	14	1.68	4.26	19	2.27	6.53
Western London	64	6.14	9.70	51	4.89	12.81
MERSEYSIDE						
Knowsley, St Helens & Sefton	9	1.85	3.61	3	0.61	1.33
Liverpool	29	7.92	6.08	24	6.70	4.99
Wirral	9	3.57	2.83	15	5.98	5.23

Coroner's Jurisdiction & county district	Number of np-SAD deaths 2006	Annual death rate per 100,000 population 2006 (1)	Annual % of all inquests held in 2006 (2)	Number of np-SAD deaths 2007	Annual death rate per 100,000 population 2007 (1)	Annual % of all inquests held in 2007 (2)
NORFOLK						
Greater Norfolk	14	2.28	4.29	44	7.01	12.02
Great Yarmouth	-	-	-	1	1.29	2.44
NORTHAMPTONSHIRE	3	0.58	1.11	25	4.60	10.68
NORTHUMBERLAND						
North Northumberland	9	9.48	6.12	4	4.20	2.96
South Northumberland	-	-	-	-	-	-
NORTH YORKSHIRE						
North Yorkshire Eastern	1	0.50	0.95	2	0.97	1.50
North Yorkshire Western	3	1.09	2.50	2	0.70	1.75
York	-	-	-	-	-	-
NOTTINGHAMSHIRE	6	0.71	1.37	11	1.26	2.68
OXFORDSHIRE	7	1.38	1.78	10	1.84	2.76
SHROPSHIRE						
Mid & North Shropshire	6	3.81	6.52	2	1.25	2.02
South Shropshire	0	0.00	0.00	0	0.00	0.00
The Wrekin	4	3.14	4.49	4	3.12	5.88
SOMERSET						
Eastern Somerset	4	1.88	3.88	7	3.23	6.54
Western Somerset	7	3.40	5.00	5	2.39	3.68
SOUTH YORKSHIRE						
South Yorkshire East	18	4.14	5.17	15	3.42	4.78
South Yorkshire West	37	6.13	8.37	27	4.37	6.03
STAFFORDSHIRE						
South Staffordshire	5	1.03	1.39	21	4.25	7.14
Stoke-on-Trent & North Staffordshire	7	1.88	1.47	11	2.93	2.51
SUFFOLK	17	3.03	6.51	35	6.07	12.68
SURREY	23	2.65	6.35	20	2.25	5.65
TEESSIDE						
Hartlepool	1	1.40	1.37	3	4.10	5.26
Teesside	20	5.41	5.80	25	6.64	8.12
TYNE & WEAR						
Gateshead & South Tyneside	14	5.01	7.73	1	0.36	0.62
Newcastle-upon-Tyne	23	10.07	6.46	10	4.44	3.65
North Tyneside	1	0.64	0.48	-	-	0.00
Sunderland	8	3.49	2.31	4	1.74	1.41
WARWICKSHIRE	12	2.76	5.33	3	0.70	1.40
WEST MIDLANDS						
Birmingham	41	4.37	4.14	30	3.15	3.11
Black Country	15	2.23	4.39	6	0.89	1.97
Coventry	9	3.69	4.57	9	3.65	4.41
Wolverhampton	2	1.04	1.22	1	0.53	0.97
WEST SUSSEX	25	4.02	8.22	34	5.37	11.60
West YORKSHIRE						
West Yorkshire Eastern	40	4.73	7.65	65	7.32	13.05
West Yorkshire Western	36	4.28	8.00	43	4.98	10.64
WILTSHIRE	1	0.20	0.37	1	0.19	0.36
WORCESTERSHIRE	12	2.66	4.56	6	1.32	2.27

Coroner's Jurisdiction & county district	Number of np-SAD deaths 2006	Annual death rate per 100,000 population 2006 (1)	Annual % of all inquests held in 2006 (2)	Number of np-SAD deaths 2007	Annual death rate per 100,000 population 2007 (1)	Annual % of all inquests held in 2007 (2)
WALES						
Bridgend & Glamorgan Valleys	8	2.39	3.11	12	3.51	3.64
Cardiff & the Vale of Glamorgan	0	0.00	0.00	3	0.83	0.56
Carmarthenshire	3	2.07	3.37	2	1.37	2.63
Central North Wales	-	-	-	-	-	-
Ceredigion	2	3.05	5.88	0	0.00	0.00
Gwent	8	1.81	5.10	16	3.55	11.76
Neath & Port Talbot	5	4.54	7.04	7	6.24	12.07
North East Wales	-	-	-	-	-	-
North West Wales	12	7.89	9.09	5	3.26	3.79
Pembrokeshire	2	2.11	3.39	6	6.28	8.96
Powys	1	0.93	1.43	0	0.00	0.00
Swansea	12	6.48	8.05	1	0.53	0.64
NORTHERN IRELAND						
Northern Ireland)	2	0.15	0.97	23	1.67	-
THE ISLANDS						
GUERNSEY	0	0.00	0.00	1	1.87	11.11
JERSEY	9	12.29	25.00	7	9.39	16.67
ISLE OF MAN	1	1.53	2.13	4	6.03	20.00
SCOTLAND						
Dumbarton	11	11.34	-	20	20.56	-

Please note that (0) refers to either no drug-related deaths or death rates of less than 0.01, whilst (–) indicates that no reports were submitted for the specific period from that jurisdiction or area prior to or shortly after the preparation of the previous annual report. In subsequent reports these rates may increase as more inquests on deaths in 2007 are held and/or notified to the np-SAD. These rates should therefore be regarded as minimum rates.

(1) The rate per 100,000 population is based on published mid-year population estimates for local government administrative areas for the years in question. However, the areas covered by 23 of the coroners' jurisdictions in England and Wales are not co-terminous with these boundaries, as well as the area covered by the Procurators Fiscal region in Dumbarton, and cover parts of such areas (see Appendix 1). Where administrative areas are split between jurisdictions, the estimated population has been divided into two or three as applicable. However, this means that the population of some coroners' jurisdictions may be either over- or under-estimated. It is necessary to make such assumptions until more accurate figures can be obtained or calculated.

(2) Inquests held on all ages.

(3) The amalgamations of the following coroner's jurisdictions during the period covered by this report mean that rates for the new areas have been calculated retrospectively based on published figures: High Peak and Scarsdale were merged to form North Derbyshire (1 February 2006); Gloucester and Cheltenham merged to form Gloucestershire (1 April 2006). In Norfolk, King's Lynn and Norwich & Central Norfolk to form Greater Norfolk (6 April 2007); in Cumbria, the three jurisdictions of North East Cumbria, Southern Cumbria & Furness, and Western Cumbria to form two new areas - North & West Cumbria and South & East Cumbria (1 May 2007).

Annex AR4: np-SAD cases in 2007 by Drug and Alcohol Action Team area (16 years and over)

Drug and Alcohol Action Team	Number and annual death rate per 100,000 population – usual area of residence		Number and annual death rate per 100,000 population – place of death	
	No	Rate	No	Rate
ENGLAND				
NORTH EAST				
County Durham	4	0.96	4	0.96
Darlington	3	3.72	3	3.72
Gateshead	1	0.64	1	0.64
Hartlepool	4	5.47	3	4.10
Middlesbrough	8	7.24	9	8.14
Newcastle-upon-Tyne	10	4.44	10	4.44
North Tyneside*	-	-	-	-
Northumberland	4	1.56	4	1.56
Redcar and Cleveland	6	5.30	6	5.30
South Tyneside	0	0.00	0	0.00
Stockton on Tees	10	6.54	10	6.54
Sunderland	4	1.74	4	1.74
NORTH WEST				
Blackburn with Darwen	12	11.25	16	15.01
Blackpool	20	17.18	22	18.90
Bolton	9	4.34	7	3.37
Bury	3	2.05	3	2.05
Cheshire	24	4.27	27	4.81
Cumbria	15	3.65	14	3.41
Halton	5	5.26	4	4.21
Knowsley	1	0.83	0	0.00
Lancashire	60	6.32	55	5.79
Liverpool	20	5.58	24	6.70
Manchester	21	5.62	22	5.89
Oldham	4	2.34	4	2.34
Rochdale	7	4.31	6	3.70
Salford	2	1.12	2	1.12
Sefton	5	2.21	3	1.33
St Helens	0	0.00	0	0.00
Stockport	1	0.44	1	0.44
Tameside	3	1.74	3	1.74
Trafford	2	1.17	1	0.59
Warrington	8	5.09	7	4.45
Wigan	5	2.02	6	2.43
Wirral	15	5.98	15	5.98
YORKSHIRE AND HUMBER				
Barnsley	7	3.85	8	4.40
Bradford	21	5.45	25	6.49
Calderdale	3	1.87	1	0.62
Doncaster	13	5.54	14	5.96
East Riding of Yorkshire	4	1.45	6	2.18
Kingston-upon-Hull	14	6.71	16	7.67
Kirklees	18	5.65	19	5.97
Leeds	39	6.23	37	5.91
North East Lincolnshire	0	0.00	0	0.00
North Lincolnshire	6	4.65	6	4.65

Drug and Alcohol Action Team	Number and annual death rate per 100,000 population – usual area of residence		Number and annual death rate per 100,000 population – place of death	
	No	Rate	No	Rate
North Yorkshire	3	0.61	4	0.82
Rotherham	5	2.45	5	2.45
Sheffield	18	4.13	18	4.13
Wakefield	26	9.95	26	9.95
York	-	-	-	-
EAST MIDLANDS				
Derby	14	7.32	15	7.84
Derbyshire	25	4.04	21	3.39
Leicester*	0	0.00	0	0.00
Leicestershire	6	1.15	6	1.15
Lincolnshire	36	6.31	33	5.78
Northamptonshire	23	4.23	25	4.60
Nottingham	3	1.26	4	1.68
Nottinghamshire	8	1.27	7	1.11
Rutland	0	0.00	0	0.00
WEST MIDLANDS				
Birmingham	28	3.56	31	3.94
Coventry	8	3.24	9	3.65
Dudley	2	0.81	2	0.81
Herefordshire	3	2.04	3	2.04
Sandwell	3	1.32	1	0.44
Shropshire	2	0.84	2	0.84
Solihull	1	0.61	1	0.61
Staffordshire	25	3.70	22	3.26
Stoke-on-Trent	9	4.65	9	4.65
Telford and Wrekin	4	3.12	4	3.12
Walsall	3	1.49	3	1.49
Warwickshire	4	0.93	4	0.93
Wolverhampton	1	0.53	1	0.53
Worcestershire	5	1.10	4	0.88
EAST				
Bedfordshire	7	2.15	6	1.84
Cambridgeshire	14	2.87	12	2.46
Essex	11	0.99	8	0.72
Hertfordshire	18	2.11	18	2.11
Luton	8	5.44	10	6.81
Norfolk	45	6.45	45	6.45
Peterborough	11	8.51	13	10.06
Southend-on-Sea	11	8.40	14	10.70
Suffolk	33	5.72	34	5.89
Thurrock	1	0.85	0	0.00
LONDON				
Inner London				
Camden	13	6.64	17	8.69
City of London	0	0.00	0	0.00
Hackney	13	7.96	13	7.96
Hammersmith and Fulham	15	10.38	14	9.69
Haringey	14	7.74	10	5.53
Islington	12	7.63	14	8.91
Kensington and Chelsea	1	0.66	1	0.66
Lambeth	15	6.68	17	7.57
Lewisham	11	5.31	9	4.34
Newham	2	1.05	1	0.53

Drug and Alcohol Action Team	Number and annual death rate per 100,000 population – usual area of residence		Number and annual death rate per 100,000 population – place of death	
	No	Rate	No	Rate
Southwark	10	4.44	14	6.22
Tower Hamlets	14	8.19	18	10.53
Wandsworth	0	0.00	1	0.42
Westminster	7	3.44	9	4.43
Outer London				
Barking and Dagenham	2	1.58	2	1.58
Barnet	9	3.43	7	2.67
Bexley	2	1.13	1	0.56
Brent	5	2.28	6	2.74
Bromley	5	2.07	5	2.07
Croydon	8	2.97	10	3.72
Ealing	8	3.23	6	2.42
Enfield	7	3.11	9	4.00
Greenwich	8	4.54	11	6.24
Harrow	2	1.16	2	1.16
Havering	2	1.08	1	0.54
Hillingdon	10	5.02	9	4.52
Hounslow	8	4.51	9	5.08
Kingston-upon-Thames	4	3.10	6	4.64
Merton	2	1.23	0	0.00
Redbridge	2	1.00	2	1.00
Richmond-upon-Thames	4	2.76	3	2.07
Sutton	2	1.34	2	1.34
Waltham Forest*	2	1.14	4	2.29
SOUTH EAST				
Bracknell Forest*	-	-	-	-
Brighton and Hove	39	18.37	39	18.37
Buckinghamshire	14	3.59	16	4.10
East Sussex	15	3.60	15	3.60
Hampshire	32	3.09	31	3.00
Isle of Wight	6	5.17	6	5.17
Kent*	15	1.34	16	1.42
Medway towns	3	1.50	2	1.00
Milton Keynes	7	3.90	7	3.90
Oxfordshire	9	1.75	10	1.94
Portsmouth	6	3.66	5	3.05
Reading*	-	-	-	-
Slough*	-	-	1	1.06
Southampton	10	5.18	11	5.70
Surrey	22	2.48	20	2.25
West Berkshire*	1	0.84	-	-
West Sussex	39	6.16	34	5.37
Windsor and Maidenhead*	-	-	-	-
Wokingham*	2	1.60	-	-
SOUTH WEST				
Bath and North East Somerset	2	1.35	3	2.03
Bournemouth	26	18.91	30	21.82
Bristol	8	2.31	8	2.31
Cornwall & Isles of Scilly	32	7.27	34	7.73
Devon	12	1.92	12	1.92
Dorset	10	2.96	4	1.19
Gloucestershire	3	0.63	3	0.63
North Somerset	2	1.19	2	1.19

Drug and Alcohol Action Team	National and annual death rate per 100,000 population – usual area of residence		National and annual death rate per 100,000 population – place of death	
	No	Rate	No	Rate
Plymouth	12	5.81	10	4.84
Poole	5	4.40	7	6.16
Somerset	12	8.00	13	3.05
South Gloucestershire	0	0.00	0	0.00
Swindon	1	0.66	0	0.00
Torbay	5	4.48	5	4.48
Wiltshire	1	0.28	1	0.28
WALES				
Bro Taf	13	2.19	12	2.02
Dyfed Powys	6	1.44	5	1.20
Gwent	15	3.33	15	3.33
Iechyd Morgannwg	11	2.69	11	2.69
North Wales	8	1.44	6	1.08
NORTHERN IRELAND				
Eastern	9	1.68	9	1.68
Northern	4	1.13	6	1.70
Southern	5	1.90	5	1.90
Western	3	1.32	3	1.32
THE ISLANDS				
GUERNSEY	1	1.87	1	1.87
JERSEY	7	10.56	7	10.56
ISLE OF MAN	4	5.37	4	5.37

Note: In addition there were a number of cases that could not be allocated to specific DA(A)T areas because they were of no fixed abode and/or the jurisdiction in which the inquest was held covers more than one DA(A)T. Some DA(A)Ts are covered by coroner's jurisdictions that did not submit information to the np-SAD; they are marked thus - *.

Annex AR5: Profile of cases In England and Wales meeting criteria for monitoring the Government's drug strategy, 2007

Introduction

This annex has been compiled at the request of the Department of Health (England) to monitor cases against the Government's drug strategy definition. Whilst the official target is being measured by reference to figures compiled by the Office for National Statistics (ONS), information generated by cases notified by coroners to the np-SAD can complement their data.

Definition of cases

The definition of a drug-related death adopted for the Government's drug strategy[3] is somewhat narrower than that for an np-SAD case (see Section II above). It is possible to derive information on this narrower basis by operationalising the np-SAD case definition using the method described below. The np-SAD approach is to exclude two specific categories from its case definition; those remaining are regarded as meeting the criteria for the Government's definition. The two categories excluded from the np-SAD cases are; (a) deaths of non-drug abusers where no Controlled Drugs were found at post mortem or where a specific compound analgesics was found at post mortem; and (b) deaths of drug abusers where no Controlled Drugs were found at post mortem or where a specific compound analgesics was found at post mortem and the mechanism of death was hanging, drowning, accident, etc.

For the purposes of this annex, the np-SAD has closely followed the same approach as the Office for National Statistics and the General Register Office for Scotland in respect of the compound analgesics not treated as Controlled Drugs, the exception being that of codeine. This cannot be excluded from our consideration because it is a by-product of the degeneration of heroin in the body and thus may represent the consumption of heroin rather than codeine. This will not have affected many cases.

Profile of cases

The following analysis looks at deaths occurring in England and Wales during 2007 which meet the above selection criteria (1,245/1,507 or 82.6% of all cases reported to the Programme). Demographic details and a summary of principal drugs implicated in death are presented below.

1. Demography

The majority of cases were male (80%). The median age at death was 37 years (semi-inter quartile range = 7.7), with three-quarters (76%) being under the age of 45 years. Where ethnicity was known, the vast majority (94.1%) were White. Where addict status was known, the majority (71.8%) had a history of drug-dependence or abuse. Just over half (51%) of cases were unemployed and 49% of cases were living alone or in no fixed abode at the time of their death (Table AR5.1).

2. *Location of death*

The majority of cases (68%) died at a defined residential address (e.g. the deceased's home address or other private residential address), one-fifth (20%) died in hospital and the remainder (12%) died elsewhere (e.g. in a public place).

3. Substances implicated in death

Psychoactive substances were implicated in 1,197/1,245 deaths (96.1%). The principal substances implicated in drug-related deaths were: heroin/morphine (56%) and alcohol in combination with other drugs (38%). Other classes of drugs making a sizeable contribution (in excess of 10%) to deaths were: other opiates/opioid analgesics; methadone; hypnotics/ sedatives; cocaine; and anti-depressants. Heroin/morphine as the sole implicated drug accounted for 23% of deaths. The breakdown of psychoactive substances implicated in death is presented in Table AR5.2.

3 See ONS (2008) for further details

Table AR5.1: Demographic variables for death reported to np-SAD meeting the criteria for monitoring the Government's drug strategy, England & Wales, 2007

Variable	Category	Number (%)
Total		1,245 (100.0)
Gender	Male	998 (80.2)
	Female	247 (19.8)
Employment status	Unemployed	632 (50.8)
	Employed	401 (32.2)
	Childcare/house person	13 (1.0)
	Student	18 (1.4)
	Retired/sickness/invalidity	97 (7.8)
	Other	5 (0.4)
	Not known	79 (6.3)
Living arrangements	Alone	544 (43.7)
	With others	532 (42.7)
	No fixed abode	66 (5.3)
	Other	45 (3.6)
	Not known	58 (4.7)

Table AR5.2: Psychoactive substances implicated in deaths reported to np-SAD meeting the criteria for monitoring the Government's drug strategy, England & Wales, 2007

Drug category	Number of cases where no other substance was implicated	Number of cases where drug was implicated
	No. (%)	No. (%)
Total of cases with psychoactive drug implicated	1,197 (100.0)	1,197 (100.0)
Alcohol-in-combination(1)	-	456 (38.1)
Amphetamines	8 (0.7)	51 (4.3)
Anti-depressants	8 (0.7)	184(15.4)
Anti-epileptics	0 (0.0)	15 (1.3)
Anti-psychotics	1 (0.1)	23 (1.9)
Cannabis	3 (0.3)	53 (4.4)
Cocaine	38 (3.2)	232 (19.4)
Ecstasy-type drugs	10 (0.8)	41 (3.4)
GHB	3 (0.3)	6 (0.5)
Heroin/morphine	190 (15.9)	671 (56.1)
Hypnotic/sedatives	15 (1.2)	268 (22.4)
Methadone	61 (5.1)	279 (23.3)
Other opiates/opioid analgesics	35 (2.9)	294 (24.6)
(1) Alcohol on its own does not meet the criteria for an np-SAD case.		

4. Age and drug implicated in death

In cases aged 15-44 years, heroin/morphine (60.9%) was the most frequently mentioned drug contributing to fatality. In those aged 45 years and over, heroin/morphine (52.4%) followed closely by other opiates/opiate analgesics (48.9%) were the most frequently mentioned as being implicated (Table AR5.3).

Table AR5.3: Age and drug implicated in deaths reported to np-SAD meeting the criteria for monitoring the Government's drug strategy, England & Wales, 2007

Age-group (years)	Number (%) where drug was implicated	Drug category (alone or in combination) most frequently implicated in each age group
All ages	1,197 (100.0)	Heroin/morphine (56.1%)
14 & under	1 (0.1)	Anti-depressants & hypnotics/sedatives
15–24	141 (11.8)	Heroin/morphine (46.8%)
25-34	374 (31.2)	Heroin/morphine (65.0%)
35-44	387 (32.3)	Heroin/morphine (62.0%)
45-54	189 (15.8)	Heroin/morphine (48.7%)
55-64	67 (5.6)	Other opiates/opioid analgesics (37.3%)
65 & over	38 (3.2)	Other opiates/opioid analgesics (55.3%)

5. Underlying cause(s) of death

The proportions of ICD-10 categories of underlying cause of death were as follows:

- Accidental poisoning (X40-X47): 69.4%
- Intentional self-poisoning (X60-X67): 10.0%
- Poisonings of undetermined intent (Y10-Y14): 9.4%
- Other (e.g. natural causes, drowning, hanging, unascertained): 11.1%

6. Manner of death

The manner of death in these cases was considered to be as follows:

- Natural: 2.0%
- Accidental: 75.3%
- Suicidal: 12.7%
- Homicidal: 0.1%
- Undetermined: 9.4%
- Unclassified/not specified: 0.5%

Annex AR6: Drug-related deaths reported to the Scottish Crime and Drug Enforcement Agency, 2007

This section describes the pattern of drug-related deaths in Scotland. The Scottish Crime and Drug Enforcement Agency (SCDEA) on behalf of the Association of Chief Police Officers in Scotland (ACPOS) collate data on drug-related deaths obtained from Scottish police forces. These data are used to populate a national database which is maintained by the SCDEA. As such the data supplied to the SCDEA remain the property of the submitting force that is also responsible for its accuracy and submission to the database. Drug-related death cases are those that meet the definition used by the Association of Chief Police Officers (Scotland) – "where there is prima facie evidence of a fatal overdose of controlled drugs. Such evidence would be recent drug misuse, for example controlled drugs and/or a hypodermic syringe found in close proximity to the body and/or the person is known to the police as a drug misuser although not necessarily a notified addict." Thus, most suicides in Scotland are excluded.

1. Demography

Notifications of 357 drug-related deaths occurring in 2007 were received by the SCDEA, covering the following police force areas: Central Scotland (2.5%); Dumfries & Galloway (1.1%); Fife (6.2%); Grampian (9.2%); Lothian & Borders (14.0%); Northern (2.0%); Strathclyde (56.0%); and Tayside (9.0)%.

The majority (89%) of cases were male (Table AR6.1). The median age at death was 32.8 years (semi-interquartile range = 6.6) (Figure AR6.1). The majority (90%) of cases were under 45 years. Where ethnicity was known, the majority were White (99%).

Table AR6.1: Demographic variables for drug-related deaths as reported by Scottish police forces to the SCDEA, 2007

Variable	Category	No	%
Total		357	100.0
Gender	Male	316	88.5
	Female	41	11.5
Age-group (years)			
	15-24	78	21.8
	25-34	134	37.5
	35-44	109	30.5
	45-54	28	7.8
	55-64	7	2.0
	65 & over	1	0.3

2. Location of death

In line with data protection, the SCDEA database structure does not record information on living arrangements and place of death. This information was available in only 5% and 5.4% respectively of Scottish cases. Where data on place of death had been made available by the Procurator Fiscal, in Dumbarton; the majority of fatalities (80%) occurred at a defined residential address (i.e. the deceased's home address or other private residential address), 10% died in hospital and 10% died elsewhere (e.g. in a public place).

3. Cause(s) of death

The majority of fatalities (96%) were considered to be accidental (i.e. clearly non-deliberate) poisoning. Deaths due to natural causes or poisonings of undetermined intent accounted for the remaining cases.

4. Substances implicated in death

4.1 All substances

Psychoactive drugs were not directly implicated in about 0.8% of cases (n = 3). Of the remaining 354 cases, the principal substances implicated were: heroin/morphine (64%); methadone (27%); alcohol in combination with other substances (27%); hypnotics/sedatives (18%); other opiates/ opioid analgesics (15%); and cocaine (11%) (Table AR6.2).

Figure AR6.2 takes into account data where one of the following drugs was known to be implicated: alcohol-in-combination; anti-depressants; cocaine; ecstasy-type drugs; heroin/morphine; hypnotics/sedatives; methadone; or other opiates/opioid analgesics.

4.2 Single substances

The following substances, as the sole implicated drug, accounted for 143 (40%) deaths: heroin/morphine (27%); methadone (9%); other opiates/opioid analgesics (2%); cocaine (1%); and amphetamines (1%) (Table AR6.2).

Table AR6.2: Psychoactive substances implicated in drug-related deaths as reported by Scottish police forces to the SCDEA, 2007

Drug category	Number (%) of cases where no other substance was implicated	Number (%) of cases where drug was implicated*
Total	354 (100.0)	354 (100.0)
Alcohol-in-combination	-	95 (26.8)
Amphetamines	3 (0.8)	6 (1.7)
Anti-depressants	1 (0.3)	16 (4.5)
Anti-epileptics	0 (0.0)	0 (0.0)
Anti-Parkinsons	0 (0.0)	1 (0.3)
Anti-psychotics	0 (0.0)	1 (0.3)
Cannabis	0 (0.0)	0 (0.0)
Cocaine	4 (1.1)	39 (11.0)
Ecstasy-type drugs	2 (0.6)	13 (3.7)
GHB	1 (0.3)	1 (0.3)
Heroin/morphine	94 (26.6)	228(64.4)
Hypnotic/sedatives	0 (0.0)	65 (18.4)
Methadone	31 (8.8)	96 (27.1)
Other opiates/opioid analgesics	7 (2.0)	52 (14.7)
Note: Column totals may sum to more than 100% since more than one substance may be implicated in a death.		

Figure AR6.1: Drug-related deaths as reported by Scottish police forces to the SCDEA, by age and gender, 2007

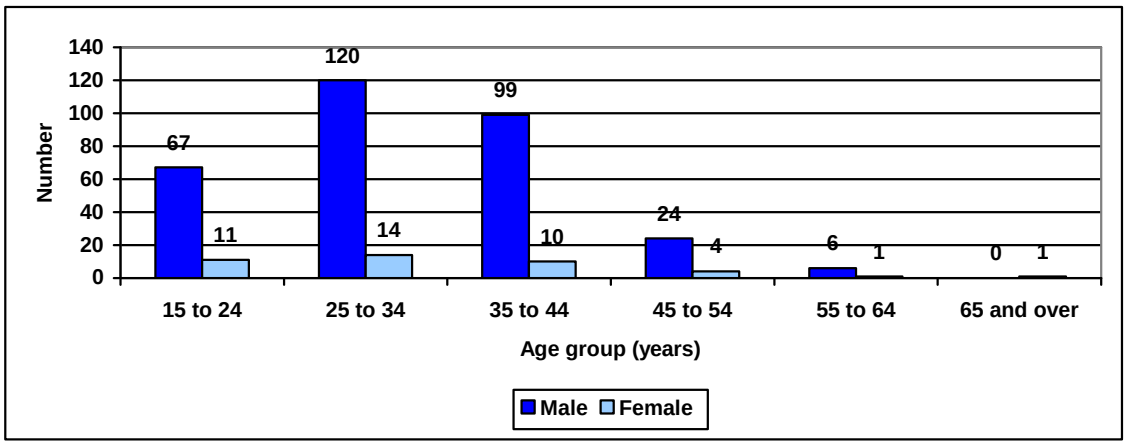
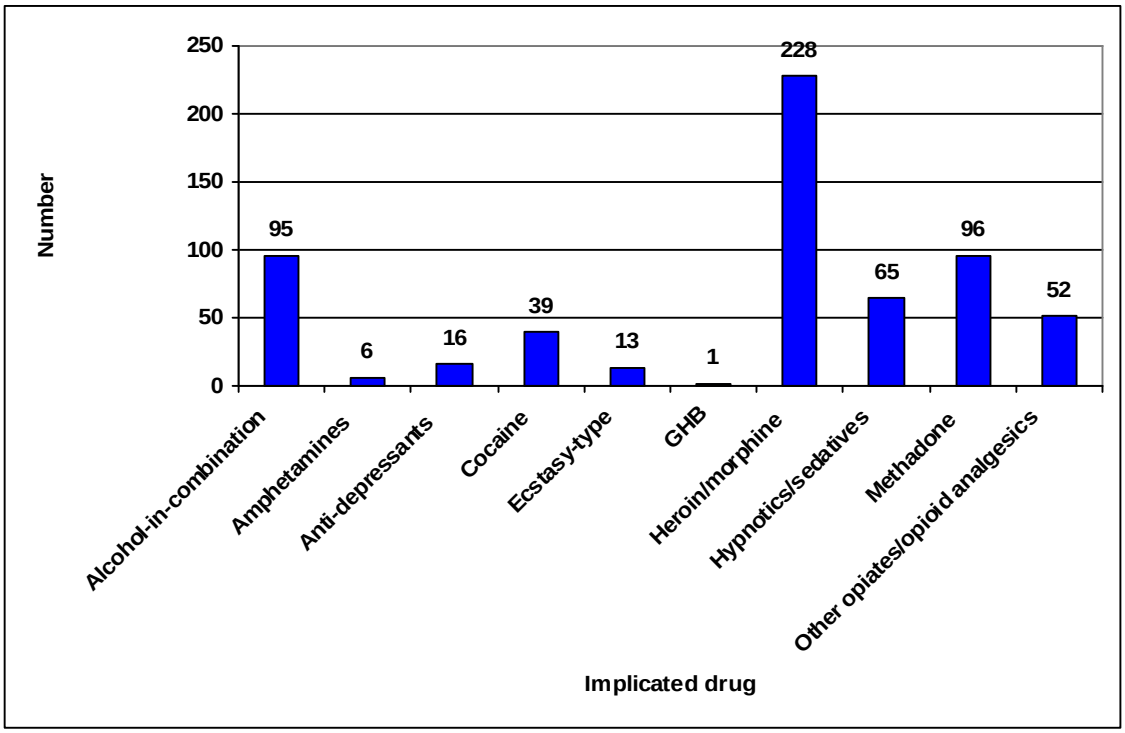


Figure AR6.2: Drug-related deaths as reported by Scottish police forces to the SCDEA, by selected psychoactive drug implicated, 2007



5. Age and drug implicated in death

In cases aged 15 years and over, heroin/morphine was the most frequently mentioned drug contributing to fatality (Table AR6.3). This was also the case for all of the individual age-groups, except the sole case aged 65 or over which involved ant-depressants alone.

Table AR6.3: Age and psychoactive drug implicated in drug-related deaths as reported by Scottish police forces to the SCDEA, 2007

Age-group (years)	Number (%)	Drug category (alone or in combination) most frequently implicated in each age group
All ages	354 (100.0)	Heroin/morphine (64.4%)
14 & under	0 (0.0)	-
15–24	78 (22.0)	Heroin/morphine (66.7%)
25-34	132 (37.3)	Heroin/morphine (62.1%)
35-44	109 (30.8)	Heroin/morphine (67.9%)
45-54	27 (7.6)	Heroin/morphine (51.9%)
55-64	7 (2.0)	Heroin/morphine (85.7%)
65 and over	1 (0.3)	Anti-depressants (1)

6. Gender and drug implicated in death

In males and females, heroin/morphine was the most frequently mentioned drug, accounting for 68% and 89% of fatalities respectively. However, the pattern of other drug-specific fatality was somewhat different in male and female cases.

Among males, the most frequently mentioned drugs were: heroin/morphine (68%); alcohol-in-combination (29%); and methadone (24%). Furthermore, there was a higher proportion of cases of drug-specific fatality among males compared to females in respect of alcohol-in-combination (29% vs. 13%); hypnotics/ sedatives (19% vs. 15%); and cocaine (11% vs. 8%).

Among female cases, the most frequently mentioned drugs were: heroin/morphine (89%); methadone (51%); hypnotics/sedatives (15%); other opiates/opioid analgesics (15%); and alcohol in combination (13%). Compared to male cases, female cases had a higher proportion of fatality associated with heroin/morphine (89% vs. 68%); methadone (51% vs. 24%), and anti-depressants (18% vs. 3%).

7. Regional patterns

The number of drug-related deaths reported by police to the SCDEA and meeting the np-SAD case criteria fell from 312 in 2004 to 254 in 2005, and then rose to 374 in 2006. The figure for 2007 was 357; this represents a decrease of 4.5%. Whilst most of this was due to decreases in the number reported for the Central Scotland, Grampian and Strathclyde police force areas, there were increases in the areas covered by Dumfries & Galloway, Fife and Tayside forces (Table AR6.4). The rates in the Strathclyde police force area are on a par with the higher rates reported in England and Wales (except Blackpool & the Fylde and Brighton & Hove).

Table AR6.4: Deaths meeting np-SAD criteria as reported by Scottish police forces to the SCDEA, per 100,000 population by police force area, 2005-7

Police force area	Number of deaths 2005	Annual death rate per 100,000 population 2005 (1)	Number of deaths 2006	Annual death rate per 100,000 population 2006 (1)	Number of deaths 2007	Annual death rate per 100,000 population 2007 (1)
Central Scotland Police	9	3.91	16	6.90	9	3.11
Dumfries & Galloway Constabulary	4	3.27	3	2.45	4	2.69
Fife Constabulary	14	4.82	20	6.82	22	5.78
Grampian Police	24	5.58	48	11.03	33	6.16
Lothian & Borders Police	43	5.79	42	5.58	50	5.42
Northern Constabulary	7	3.05	7	3.02	7	2.45
Strathclyde Police	145	8.06	210	11.63	200	9.05
Tayside Police	18	5.62	28	8.68	32	8.37
Scotland	264	6.34	374	8.92	357	6.94
(1) The rate per 100,000 population is based on published mid-year population estimates for local government administrative areas for the years in question.						

Annex AR7: Drug-related deaths recorded by the Northern Ireland Statistics and Research Agency (NISRA), 2007

This section describes the pattern of drug-related deaths in Northern Ireland. The Northern Ireland Statistics and Research Agency (NISRA) provided the data analysed in this section, from registrations recorded by the General Register Office for Northern Ireland. Coroners in Northern Ireland routinely submit returns on drug-related deaths after conducting an inquiry, similar to that in England and Wales.

1. Demography

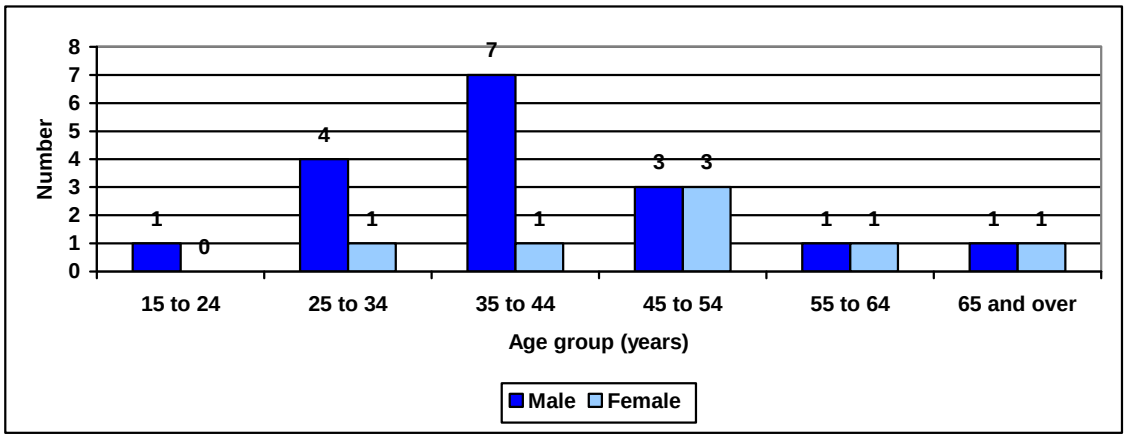
Notifications of 24 drug-related deaths occurring in 2007 were received from NISRA and coroners which meet the np-SAD case criteria. The number of such deaths was 58 in 2004, 65 in 2005, and 54 in 2006. However, the number of drug-related deaths has varied greatly from year to year in Northern Ireland. There is also a backlog of inquests and related death registrations which means that further deaths for 2007 may be subsequently notified to the NISRA by coroners. In 2007 there was a rate of 1.74 drug-related deaths per 100,000 population aged 16 years and over, compared with 4.38 in 2004, 4.84 in 2005, and 3.97 in 2006. These rates are low by comparison with the rest of the UK.

The majority (17/24) of the cases in 2007 were male (Table AR7.1). The median age at death was 41.3 years (semi-interquartile range = 9.8) (Figure AR7.1). Nearly three-fifths (58%) of cases were under 45 years. Half (50%) were unemployed, nearly three-fifths (58%) lived with others. Where ethnicity was known, all decedents were White. Addict status was known in only 11 cases, four of which has a history of dependence.

Table AR7.1: Demographic variables for drug-related deaths reported by NISRA and coroners meeting np-SAD criteria, Northern Ireland, 2007

Variable	Category	Number (n = 24)
Gender	Male	17
	Female	7
Employment status	Employed	7
	Unemployed	12
	Childcare/house person	1
	Retired/sickness/invalidity	3
	Not known	1

Figure AR7.1: Drug-related deaths reported by NISRA and coroners meeting np-SAD criteria, by age and gender, Northern Ireland, 2007



2. Location of death

Most fatalities (19/24) occurred at a defined residential address (i.e. the deceased's home address or other private residential address). One occurred in hospital and four elsewhere.

3. Cause(s) of death

Six cases died from accidental poisoning, one from intentional self-poisoning, and in 15 cases the intent was undetermined. There was one drowning, and one death involving an insulin overdose.

4. Substances implicated in death

4.1 All substances

Psychoactive drugs were directly implicated in all but one case. The principal substances implicated were: alcohol-in-combination (13); hypnotics/sedatives (13); anti-depressants (10); other opiates/opioid analgesics (7); and anti-epileptics (4) (Table AR7.2). This profile is different to that seen in England and Wales and more similar to that seen in Scotland in terms of the large proportion of hypnotics/ sedatives involved (GROS, 2008).

Figure AR7.2 takes into account data where one of the following drugs was known to be implicated: alcohol-in-combination; anti-depressants; anti-epileptics; anti-psychotics; cannabis; cocaine; ecstasy-type drugs; heroin/morphine; hypnotics/sedatives; methadone; or other opiates/opioid analgesics.

4.2 Single substances

The following substances, as the sole implicated drug, accounted for 3/24 deaths: cocaine; heroin/morphine; and other opiates/ opioid analgesics (Table AR7.2).

Table AR7.2: Psychoactive substances implicated in deaths reported by NISRA and coroners meeting np-SAD criteria, Northern Ireland, 2007

Drug category	Number of cases where no other substance was implicated (N = 23)	Number of cases where drug was implicated (N = 23)
Alcohol-in-combination	-	13
Amphetamines	0	1
Anti-depressants	0	10
Anti-epileptics	0	4
Anti-psychotics	0	2
Cannabis	0	0
Cocaine	1	1
Ecstasy-type drugs	0	1
Heroin/morphine	1	2
Hypnotic/sedatives	0	13
Methadone	0	1
Other opiates/opioid analgesics	1	7

Note: Column totals may sum to more than 100% since more than one substance may be implicated in a death.

5. Age and drug implicated in death

In cases aged 25-34, 45-54, and over 64 years, alcohol-in-combination with other substances was the most frequently mentioned substance contributing to fatality (Table AR7.3).

Figure AR7.2: Drug-related deaths reported by NISRA and coroners meeting np-SAD criteria, by psychoactive drug implicated, Northern Ireland, 2007

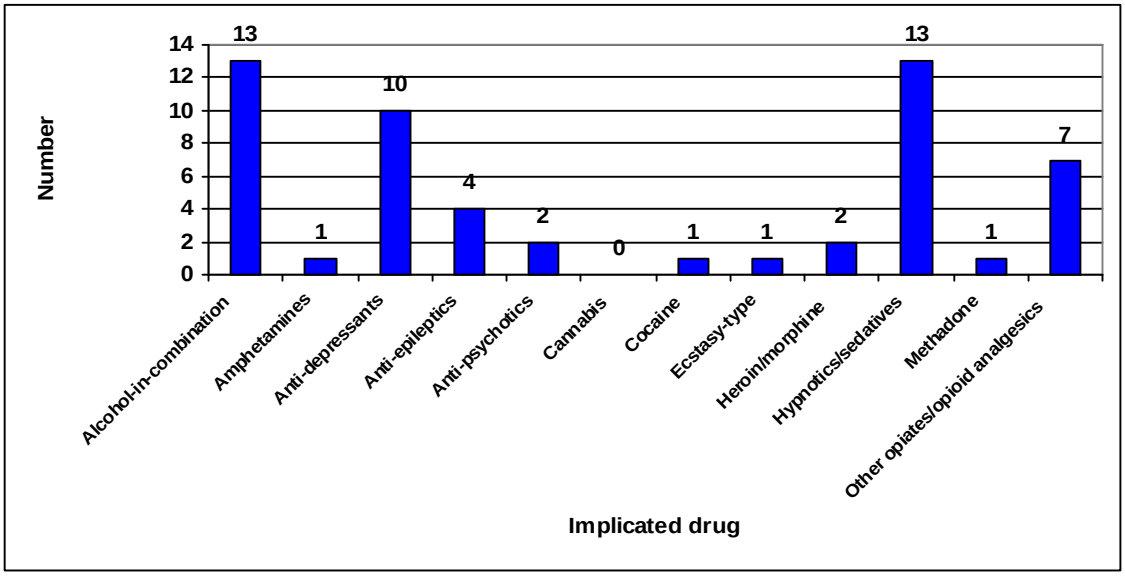


Table AR7.3: Age and psychoactive drug implicated in deaths reported to NISRA meeting np-SAD criteria, 2007

Age-group (years)	Number where substance implicated	Drug category (alone or in combination) most frequently implicated in each age group
All ages	23	Alcohol-in-combination; hypnotics/sedatives (13)
15-24	1	Amphetamines, anti-depressants, ecstasy-type drugs & hypnotics/sedatives (1)
25-34	5	Alcohol-in-combination (2) Heroin/morphine (2)
35-44	7	Hypnotics/sedatives (5)
45-54	6	Alcohol-in-combination (4)
55-64	2	Hypnotics/sedatives (2)
65 & over	2	Alcohol-in-combination (2) Anti-depressants (2)

6. Gender and drug implicated in death

The pattern of other drug-specific fatality was somewhat different in male and female cases. Among males, the most frequently mentioned drugs were: alcohol-in-combination (8/16); hypnotics/sedatives (8/16); anti-depressants (6/16); other opiates/opioid analgesics (5/16); anti-epileptics (2/16); anti-psychotics (2/16); and heroin/morphine (2/16).

Among female cases, the drugs mentioned were: alcohol-in-combination (5/7); hypnotics/sedatives (5/7); anti-depressants (4/7); other opiates/opioid analgesics (2/7); and anti-epileptics (2/7). Compared to male cases, female cases had a higher proportion of fatality associated with alcohol-in-combination (5/7 vs. 8/16); hypnotic/sedatives (5/7 vs. 8/16); and anti-depressants (4/7 vs. 6/18). Furthermore, there were no fatalities due to amphetamine, cocaine, ecstasy-type drugs, heroin/morphine, or methadone among females.

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np-SAD Surveillance Report No. 21

July – December 2007

Key Points

Surveillance Report No. 21: July - December 2007

- A total of 824 inquests into drug-related deaths were reported to the np-SAD for the period July to December 2007 by the end of June 2008. Information was submitted by 102 out of 115 coroners in England & Wales, as well as Northern Ireland, Guernsey, Jersey, the Isle of Man, together with one Procurator Fiscal in Scotland. This number of inquests represents an increase of 12.1% over the same period in 2006 (735 inquests).

- The demographic profile remains consistent with that of previous reports. The majority of cases were males (76%), under the age of 45 years (73%), and White (94%).

- The proportion of cases receiving prescribed drugs was 52%; the proportion of cases with a history of drug addiction was 65%. These findings are consistent with previous reports.

- The principal underlying cause(s) of death were: accidental poisoning (60%); poisoning of undetermined intent (13%); and intentional self-poisoning (13%).

- The following jurisdictions recorded the highest semi-annual drug-related death rate per 100,000 population aged 16 years and over: Boston & Spalding (10.5); Blackpool & the Fylde (8.9); Brighton & Hove (8.5); Pembrokeshire (6.3); and North Northumberland (5.3). The rate in Dumbarton was 12.3.

- Compared to the same period in 2006, the following changes were observed:

  - An increase in the proportion of cases unemployed from 48% to 50%, and a decrease in the proportion employed from 31% to 29%.

  - An increase in the proportion of cases living with others from 42% to 45%

  - An increase in inquests where death was due to heroin/morphine from 304 to 370

  - An increase in the involvement of alcohol in inquests concerning drug-related deaths from 230 to 307

  - An increase in inquests where hypnotics/sedatives were implicated in death from 96 to 149

  - An increase in inquests where death was due to methadone from 108 to 146

  - An increase in inquests where death was due to cocaine from 81 to 118

  - An increase in inquests where death was due to other opiates/opioid analgesics from 154 to 179

XI Introduction

A total of 102 out of 115 coroners' jurisdictions in England and Wales provided returns for this surveillance report, which covers returns made to the np-SAD for the period July to December 2007, received before the end of June 2008. Some coroners did not provide 'nil returns' (confirmation from coroners that there were no inquests involving drug-related deaths for that period). In addition, coroners in Northern Ireland, Guernsey, Jersey and the Isle of Man, together with the Procurator Fiscal for Dumbarton in Scotland, contributed data during this period. No information from the General Register Office for Northern Ireland or from the Scottish Drugs Enforcement Agency (SCDEA) is included in this surveillance report.

Overall, this report covers approximately 88% of jurisdictions in England and Wales, as well as Northern Ireland, the Isle of Man and Channel Islands. There are a number of possible reasons for not reporting. For example, the coroners' workload may prevent the notification of inquests, or there may be an assumption that a 'nil return' does not have to be reported. This highlights the importance of maintaining and resourcing a surveillance system to which coroners are willing and able to contribute on a continuous basis. There is also a need to provide appropriate training and resources to enable coroners to co-operate effectively with the requirements of a surveillance system.

XII Profile of cases

1. Demography

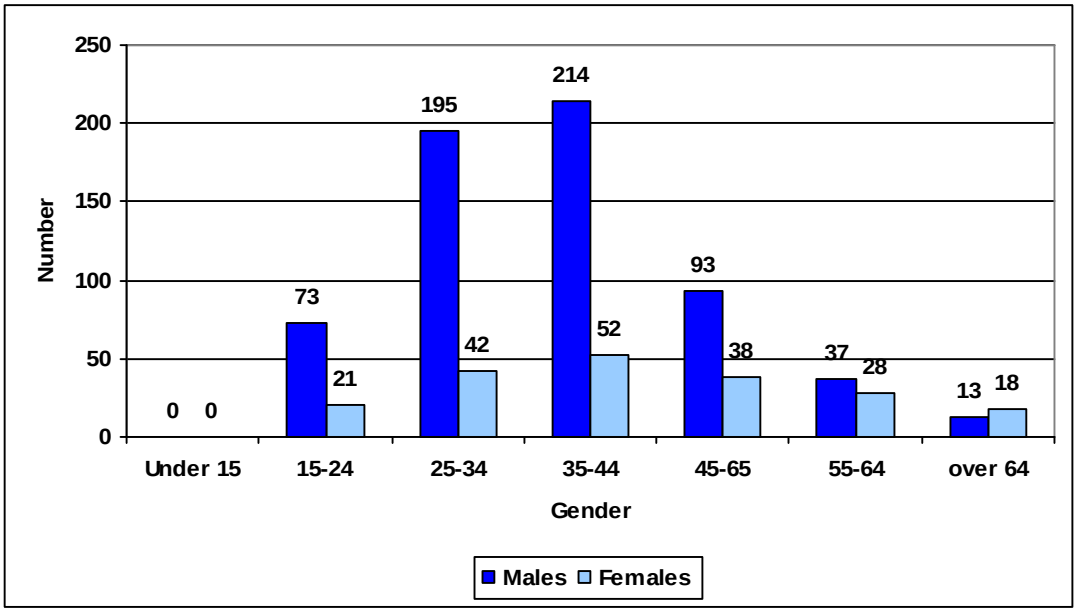
A total of 824 drug-related deaths were reported to the programme for the period July to December 2007. The majority of cases (76%) were male (n = 625). The majority of cases (73%) were aged less than 45 years. The median age at death was 37.7 years (semi-interquartile range 8.2) (Figure 9).

Where ethnicity was known, the vast majority of cases were White (93.6%); with the rest being described as Black (2.9%), Asian (1.4%), and Other (2.1%). Half of cases were unemployed. Approximately 45% of cases were living with others at the time of their death; a similar proportion were living alone (Table 10).

Table 10: Demographic variables, np-SAD inquests, July-December 2007

Variable	Category	Number (%)
Total		824 (100.0)
Gender	Male	625 (75.8)
	Female	199 (24.2)
Employment status	Unemployed	411 (49.9)
	Employed	239 (29.0)
	Childcare/houseperson	19 (2.3)
	Student	7 (0.8)
	Retired/sickness/invalidity	83 (10.1)
	Other	5 (0.6)
	Not Known	60 (7.3)
Living arrangements	Alone	358 (43.4)
	With others	369 (44.8)
	No fixed abode	34 (4.1)
	Other	30 (3.6)
	Not known	33 (4.0)

Figure 9: np-SAD inquests by age and gender, July-December 2007



2. Drug-related death rates

The following jurisdictions recorded the highest semi-annual drug-related death rate per 100,000 population aged 16 years and over: Boston & Spalding (10.5); Blackpool & the Fylde (8.9); Brighton & Hove (8.5); Pembrokeshire (6.3); and North Northumberland (5.3). The rate in Dumbarton was 12.3 (Annex SR2). The highest proportions of drug-related cases expressed as a percentage of the total number of inquests held were: Boston & Spalding (13.9); Blackpool & the Fylde (11.1%); Bournemouth, Poole & Eastern Dorset (10.7%); the Isle of Man (10.0%); Brighton & Hove (9.0%); Pembrokeshire (9.0%); Western London (8.3%); West Lincolnshire (7.8%); and North & East Cambridgeshire (7.7%).

3. Location of death

Location of death was reported in all but two cases. Where the location was known, 67% of cases died in a defined residence (i.e. the deceased's home address or other private residential address), 20% died in hospital and 13% died elsewhere (e.g. in a public place).

4. Underlying cause(s) of death

To enable comparison with various national and international data-sets all causes of death have been coded according to the International Classification of Diseases (ICD-10). This is an international standard for the classification of diseases and health related problems published by the World Health Organisation (1992). The proportions of ICD-10 categories of underlying cause(s) of death were as follows:

- Accidental poisoning (X40-X47): 60.2%
- Intentional self-poisoning (X60-X67): 12.9%
- Poisonings of undetermined intent (Y10-Y14): 12.9%
- Other (e.g. natural causes, drowning, hanging, unascertained): 14.0%

5. Manner of death

The manner of death in these cases was considered to be as follows:

- Natural: 2.2%
- Accidental: 69.7%
- Suicidal: 16.5%
- Homicidal: 0.1%
- Undetermined: 10.8%
- Unclassified/not specified: 0.7%

6. Substances implicated in death (Table 11)

6.1 All substances

Psychoactive substances were implicated in 93.9% of cases (n = 774). The principal substances implicated in fatalities were: heroin/morphine (48%); alcohol in combination with other substances (40%); other opiates/opioid analgesics (23%); anti-

depressants (20%); hypnotic/sedatives (19%); methadone (19%); and cocaine (15%).

6.2 Single substances

The following substances, as the sole implicated drug, accounted for 263 (34%) deaths: heroin/morphine (15%); other opiates/opioid analgesics (5%); anti-depressants (4%); methadone (4%), and cocaine (4%) (Table 11).

7. Prescribed psychoactive medication (Table 12)

Four hundred and thirty cases were known to be receiving prescribed psychoactive medication at the time of their death. Prescribed medications were reported in the following proportions for these therapeutic drug classes: anti-depressants 47%; hypnotic/sedatives 42%; anti-psychotics 22%, other opiates/opioid analgesics 21%; methadone 16%; and anti-epileptics 9%. 'Polypharmacy' i.e. multiple prescriptions of psychoactive drugs, occurred in 71% of these cases.

Table 11: Psychoactive substances implicated in death, np-SAD inquests, July-December 2007

Drug category	Number (%) of cases where no other substance implicated	Number (%) of cases where drug implicated
Total	774 (100.0)	774 (100.0)
Alcohol	-	307 (39.7)
Amphetamines	4 (0.5)	25 (3.2)
Anti-depressants	30 (3.9)	156 (20.2)
Anti-epileptics	1 (0.1)	14 (1.8)
Anti-psychotics	4 (0.5)	30 (3.9)
Cannabis	3 (0.4)	25 (3.2)
Cocaine	27 (3.5)	118 (15.2)
Ecstasy-type drugs	7 (0.9)	26 (3.4)
GHB	1 (0.1)	3 (0.4)
Heroin/morphine	116 (15.0)	370 (47.8)
Hypnotic/sedatives	7 (0.9)	149 (19.3)
Methadone	27 (3.5)	146 (18.9)
Other opiate/opioid analgesics	36 (4.7)	179 (23.1)
Note: Column totals may sum to more than 100% since more than one substance may be implicated in a death.		

Table 12: Prescribed psychoactive medication, np-SAD inquests, July-December 2007

Drug category	Number (%) of cases on prescribed psychoactive medication	Number (%) of cases where same drug implicated in death
Total	430 (100.0)	
Amphetamines	0 (0.0)	0 (0.0)
Anti-depressants	201 (46.7)	104 (51.7)
Anti-epileptics	40 (9.3)	8 (20.0)
Anti-psychotics	94 (21.9)	24 (25.5)
Heroin/morphine	16 (3.7)	13 (81.3)
Hypnotic/sedatives	181 (42.1)	73 (40.3)
Methadone	68 (15.8)	50 (73.5)
Other opiates/opioid analgesics	91 (21.2)	64 (70.3)
Note: Column totals may sum to more than 100% since more than one substance may be prescribed to an individual and more than one substance may be implicated in a death.		

XIII Associated risks

1. Prescribed psychoactive drugs

Of the 430 cases prescribed psychoactive medication (52% of cases) at the time of their death, 78% had those same drugs implicated in their death (Table 12).

1.1 Methadone

Methadone, alone and in combination with other drugs, was implicated in 146 cases. Of these, 66% may have obtained methadone illicitly, compared to the 34% who were known to be receiving prescribed methadone prior to their death (Percentage Ratio (PR): = 1.9, 95% Confidence Interval (CI) = 1.5 - 2.5).

Methadone alone was implicated in 27 cases. Of these, 67% may have obtained methadone illicitly, whilst 33% were prescribed the drug (Percentage Ratio (PR): = 2.0, 95% Confidence Interval (CI) = 1.1 - 3.6).

More methadone deaths seem to have arisen from illicit sources than from prescription sources. Altogether, methadone-related deaths still appear to more likely to arise from illicit than prescribed methadone.

1.2 Anti-depressants

Anti-depressants, alone and in combination with other drugs, were implicated in 156 cases. Of these, 67% were known to be receiving prescribed antidepressants at the time of their death, compared to 33% who used drugs that may have been prescribed for others (PR = 2.0, 95% CI = 1.6 - 2.6).

Anti-depressants alone were implicated in 30 cases. Of these, 75% were known to be receiving prescribed medication, compared to 25% who had used drugs that may have been prescribed for others (PR = 4.0, 95% CI = 1.9 - 8.4).

This indicates that those receiving prescribed anti-depressants were significantly more likely to have that class of drug implicated in their death, either in combination or as the sole drug.

1.3 Other opiates/opioid analgesics

Other opiates/opioid analgesics (e.g. dihydrocodeine, dextropropoxyphene) alone and in combination with other drugs, were implicated in 179 cases. Of these, 64% may have obtained the drug by other means, compared to the 36% who were known to be receiving prescribed opiates/opioid analgesics prior to their death (PR = 1.8, 95% CI = 1.4 - 2.2).

Other opiates/opioid analgesics alone were implicated in 36 cases. Of these, the drugs were known to be prescribed in 47% of cases and could have been obtained by other means in 53% of cases.

The risk of fatality from other opiate/opioid analgesics was equally likely to occur in those prescribed these drugs and in those who obtained them from other sources, where it was the sole substance.

1.4 Hypnotics/sedatives

Hypnotic/sedatives, alone and in combination with other drugs, were implicated in 149 cases. Of these, 49% were known to be receiving a prescription for this class of drug, compared to 51% who could have obtained them illicitly (PR = 1.1, 95% CI = 0.7 - 1.8).

Seven cases had hypnotic/sedatives alone implicated in their death, five of whom had received this drug category via prescription.

2. Gender and underlying cause(s) of death

Males were more likely than females to die of accidental poisoning (64% vs. 49%) (PR = 1.3, 95% CI = 1.1 - 1.5). Females, by contrast, were more likely than males to die of intentional self-poisoning (22% vs. 10%) (PR = 2.1, 95% CI = 1.5 - 3.0), and poisoning of undetermined intent (19% vs. 11%) (PR = 1.7, 95% CI = 1.2 - 2.4).

3. Gender and manner of death

A similar pattern is exhibited with regard to manner of death. Males were more likely than females to die an accidental death (73% vs. 59%) (PR = 1.2, 95% CI = 1.1 - 1.4). Conversely, females were more likely than males to die a suicidal death (24% vs. 14%) (PR = 1.7, 95% CI = 1.3 - 2.3), or a death where the manner was undetermined (14% vs. 10%) (PR = 1.4, 95% CI = 0.9 - 2.2).

4. Age and underlying cause(s) of death

Those aged less than 45 years were more likely than older individuals to die of accidental poisoning (68% vs. 41%) (PR = 1.7, 95% CI = 1.4 - 2.0). Those aged 45 years or over, by contrast, were more likely than younger individuals to die of intentional self-poisoning (29% vs. 7%) (PR = 4.2, 95% CI = 2.9 - 6.0), and poisoning of undetermined intent (16% vs. 12%) (PR = 1.4, 95% CI = 0.9 - 2.0).

5. Age and manner of death

A similar pattern is exhibited with regard to manner of death. Those aged less than 45 years were more likely than older individuals to die an accidental death (77% vs. 51%) (PR = 1.5, 95% CI = 1.3 - 1.7). Conversely, those aged 45 years or over were more likely than younger individuals to die a suicidal death (31% vs. 11%) (PR = 2.1, 95% CI = 2.1 - 3.9), or a death where the manner was undetermined (15% vs. 9%) (PR = 1.5, 95% CI = 1.0 - 2.3).

Table 13: Age and psychoactive drug implicated in death, np-SAD inquests, July–December 2007

Age group (years)	Number (%)	Drug category (alone or in combination) most frequently implicated with age group
Total	774 (100.0)	Heroin/morphine (47.8%)
Under 15	0 (0.0)	-
15 – 24	80 (10.3)	Heroin/morphine (43.8%)
25 – 34	226 (29.2)	Heroin/morphine (60.2%)
35 – 44	254 (32.8)	Heroin/morphine (52.4%)
45 – 54	125 (16.1)	Alcohol-in-combination (46.4%)
55 – 64	60 (7.8)	Anti-depressants (45.0%)
65 and over	29 (3.7)	Other opiates/opioid analgesics (41.4%)

6. Age and drug implicated in death

The most frequently implicated drugs among cases aged 44 years and under were opiates, notably heroin/morphine (46%), methadone (18%), and other opiates/opioid analgesics (16%). Alcohol-in-combination (34%) also featured prominently. Alcohol-in-combination (39%), anti-depressants (35%), other opiates/ opioid analgesics (35%), heroin/morphine (31%), and hypnotics/sedatives (21%) were most frequently implicated in cases aged over 45 years (Table 13).

7. Gender and drug implicated in death

The following substances, alone or in combination with substances, were implicated in deaths as below.

Male: heroin/morphine 55%; alcohol-in-combination 41%; other opiates/opioid analgesics 21%; methadone 19%; hypnotics/ sedatives 17%; cocaine 16%; and anti-depressants 13% of cases.

Female: anti-depressants 42%; alcohol-in-combination 35%; other opiates/opioid analgesics 30%; heroin/morphine 27%; hypnotic/sedatives 26%; methadone 20; and cocaine 12% of cases.

XIV Drug abuse/dependence

Cases with a history of drug abuse/dependence (n = 414) were compared to those without such a history (n = 222) on the following variables: demography, location of death, underlying cause(s) and manner of death. One hundred and eighty-eight cases (23%) were reported as 'not known' with respect to history of drug abuse/dependence. They were excluded from further analysis.

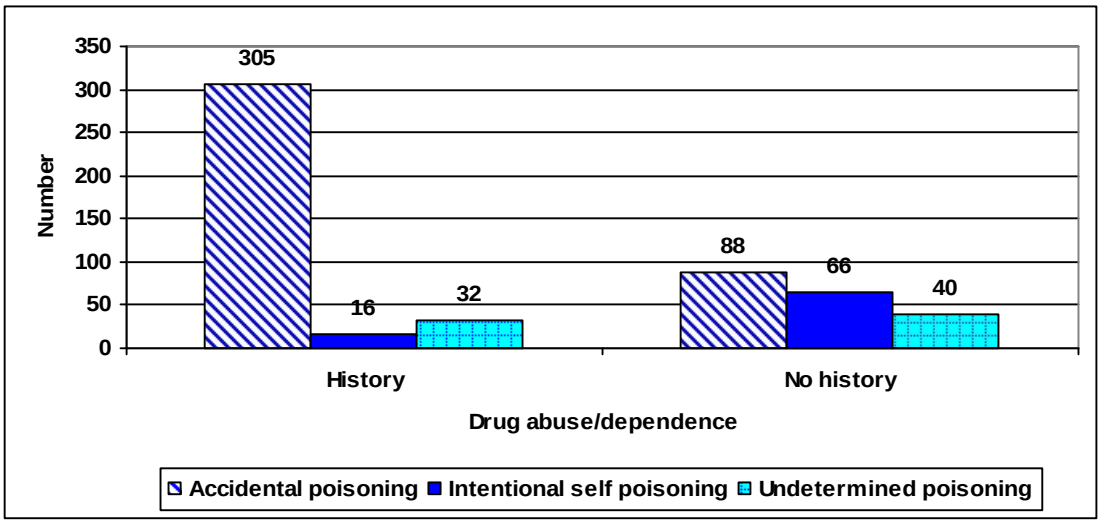
1. Demography

In comparison with non-drug abusers (NDAs: 62%), drug abusers/dependents (DAs: 81%) were more likely to be male (PR = 1.3, 95% CI = 1.2 - 1.5) and more likely to be less than 45 years of age, 82% vs. 52% (PR = 1.6, 95% CI = 1.4 - 1.8). The median age at death for DAs was 36.5 years (semi-interquartile range 6.4), while that for NDAs was 45.7 years (semi-interquartile range 11.0) (Mann-Whitney U = 30,035.5, p< 0.0005). Similar proportions of both Das and NDAs lived alone (DAs = 43.5%, NDAs = 42.3%. A higher proportion of NDAs (53%) than DAs (41%) lived with others (PR = 1.3, 95% CI = 1.0 – 1.5). DAs (59%) were more likely than NDAs (38%) to be unemployed (PR = 1.5, 95% CI = 1.3 – 1.9).

2. Location of death

The majority of both DAs and NDAs died at a defined residential address, although this proportion was higher amongst the first group: DAs = 69%; NDAs = 67% (PR = 1.0, 95% CI = 0.9 - 1.2). Non drug addicts were more likely to die in hospital (28%), than drug addicts (20%) (PR = 1.4, 95% CI = 1.0 - 1.9).

Figure 10: Principal underlying cause(s) of death by drug abuse/dependence history, np-SAD inquests, July - December 2007



3. Underlying cause(s) of death (Figure 10)

DAs were more likely than NDAs to die of accidental poisoning (74% vs. 40%) (PR = 1.9, 95% CI = 1.6 - 2.0) - Figure 10. NDAs, by contrast, were more likely than DAs to die of intentional self-poisoning (30% vs. 4%) (PR = 7.7, 95% CI = 4.6 – 13.0, and poisoning of undetermined intent (19% vs. 8%) (PR = 2.3, 95% CI = 1.5 - 3.6).

4. Manner of death

A similar pattern is exhibited with regard to manner of death. DAs were more likely than DAs to die an accidental death (82% vs. 49%) (PR = 1.7, 95% CI = 1.5 - 1.9). Conversely, NDAs were more likely than DAs to die a suicidal death (34% vs. 7%) (PR = 4.8, 95% CI = 3.2 - 7.2), or a death where the manner was undetermined (15% vs. 6%) (PR = 2.5, 95% CI = 1.6 - 4.1).

XV Commentary

The increase of 12.1% in the number of inquests notified during this surveillance period compared to the corresponding one in 2006 probably reflects an actual increase in inquests into drug-related deaths. The rate of compliance is similar to that in the previous year. The average number of inquests and the overall total for jurisdictions that reported in both periods increased; this is in line with reported deaths in 2007 (see the Annual Report above).

The demographic profile of inquests reported remains consistent with previous reports. For the period of this report, the majority of subjects of these inquests were males (76%), under the age of 45 years (73%), and White (94%). Where the information was available, 65% of cases were drug abusers/dependents, as defined by the Programme.

One aim of the Programme is to provide early warning through surveillance of high-risk populations. For the period July to December 2007, Boston & Spalding recorded the highest semi-annual death rate (10.5/100,000) in England & Wales, followed by Blackpool & the Fylde (8.9), and Brighton & Hove (8.5). Dumbarton had a rate of 12.3.

Previous reports have highlighted areas with marked changes in semi-annual death rates, and noted that the validity of those changes can only be commented on through continued monitoring. These areas are revisited in this report as well as newly identified areas where death rates have fluctuated (Annex SR3).

Jurisdictions that stood out from others in this report as a result of an increase in the number of reported cases since the previous comparable reporting period (July-December 2006) (which led to increased semi-annual death rates since the previous reporting period) were: Dumbarton (from 3.1 to 12.3/ 100,000 population); Pembrokeshire (1.1 to 6.3); Blackpool & the Fylde (5.5 to 8.9); Cornwall (1.2 to 4.3); Spilsby & Louth (0.0 to 2.3); Greater Norfolk (0.8 to 3.4); Northamptonshire (0.8 to 2.8); and Wirral (2.4 to 4.4).

Conversely, the jurisdictions which reported a marked decline in the number of cases reported since the previous comparable 6-month period (which resulted in a decline in their semi-annual death rates) were: Hartlepool (from 6.9 to 1.4/100,000 population); Teesside (5.6 to 0.5); Swansea (5.4 to 1.1); Brighton & Hove (10.8 to 8.5); Sunderland (3.0 to 0.4); Mid & North Shropshire (3.2 to 0.6); Isle of Wight (4.3 to 1.7); Southampton & New Forest (5.5 to 3.3); and East Lancashire 4.2 to 2.1).

Looking at the trends over a longer period, it can be seen that the mortality rates in Greater Norfolk have varied from 5.0 to 0.8/100,000 population and now the semi-annual death rate is 3.4/100,000. In Peterborough rates had varied between 1.6 and 4.8 and now the rate is 3.1. In Neath – Port Talbot the rate varied from 4.5 to 0.9, but is now 1.8. Other areas demonstrating large variations over the last six surveillance periods include: South & East Cumbria; Southend-on-Sea & South East Essex; the Isle of Wight; East Lancashire; Teesside; and Wolverhampton; as well as Dumbarton, Guernsey, Jersey and the Isle of Man (Annex SR3).

The semi-annual death rate in the East Riding & Hull fell over the period January-June 2005 to July-December 2007 from 6.0 to 2.1/ 100,000 population. Similar declines were observed in Isle of Man (11.3 to 3.0); South Manchester (3.5 to 0.5); Southampton & New Forest (5.6 to 3.3); Hertfordshire (2.5 to 0.4); East Lancashire (4.7 to 2.1); North Lincolnshire & Grimsby (3.2 to 1.2); Liverpool (7.7 to 3.4); North Northumberland (7.4 to 5.3); Western Somerset (3.4 to 1.4); and Teesside (3.0 to 0.5).

Areas showing increases in semi-annual death rates over the last six surveillance periods are: Boston & Spalding (1.8 to 10.5/ 100,000 population); Wirral (0.4 to 4.4); Blackburn, Hyndburn & Ribble Valley (0.0 to 3.7); Bournemouth, Poole & Eastern Dorset (2.0 to 4.3); North West Wales (0.7 to 3.3); North & East Cambridgeshire (0.8 to 2.9); Cornwall (1.9 to 4.3); Derby & South Derbyshire (1.1 to 3.5); and Dumbarton (9.5 to 12.3).

It should be noted that changes in these rates might be an artefact of other factors that affect the way in which inquests are processed, e.g. prolonged investigations, increased workload, better identification of relevant cases, etc.

While the pattern of other drug-specific mortality remains stable, comparisons

between July to December 2007 and the same period in 2006 revealed the following noticeable changes:

- An increase in the proportion of cases unemployed from 48% to 50%, and a decrease in the proportion employed from 31% to 29%.

- An increase in the proportion of cases living with others from 42% to 45%

- An increase in inquests where death was due to heroin/morphine from 304 to 370

- An increase in the involvement of alcohol in inquests concerning drug-related deaths from 230 to 307

- An increase in inquests where hypnotics/sedatives were implicated in death from 96 to 149

- An increase in inquests where death was due to methadone from 108 to 146

- An increase in inquests where death was due to cocaine from 81 to 118

- An increase in inquests where death was due to other opiates/opioid analgesics from 154 to 179

As noted in the Annual Report, there has been evidence of the continuing trend to polydrug fatalities, and the increasing involvement of alcohol in such cases.

Annex SR1: np-SAD cases reported in July-December 2007 by underlying cause(s) of death

ICD-10	No. of cases (n = 824)	%	Description
			Accidental poisoning
X40	1	0.1	Non-opioid analgesics
X41	52	6.3	Anti-epileptic, sedative-hypnotic, anti-parkinsonism and psychotropic drugs, not elsewhere classified
X42	429	52.1	Narcotics and psychodysleptics (hallucinogens), not elsewhere classified
X44	4	0.5	Other and unspecified drugs, medicaments and biological substances
X45	11	1.3	Alcohol
			Intentional self-poisoning
X60	4	0.5	Non-opioid analgesics
X61	43	5.2	Anti-epileptic, sedative-hypnotic, anti-parkinsonism and psychotropic drugs, not elsewhere classified
X62	47	5.7	Narcotics and psychodysleptics (hallucinogens), not elsewhere classified
X63	2	0.2	Other drugs acting on the autonomic nervous system
X64	10	1.2	Other and unspecified drugs, medicaments and biological substances
			Poisoning of undetermined intent
Y10	1	0.1	Non-opioid analgesics
Y11	33	4.0	Anti-Parkinsonism drugs
Y12	68	8.3	Narcotics/psychodysleptics
Y14	1	0.1	Other and unspecified drugs
Y15	3	0.4	Alcohol
			Mental & behavioural disorders due to psychoactive substance use
F10.2	4	0.5	Chronic alcoholism
F14.1	1	0.1	Harmful use - cocaine
F18.0	1	0.1	Intoxication – volatile substances
Z72.2	5	0.6	Drug abuse, personal history
			Cardiovascular system – diseases, defects or conditions affecting
I10	1	0.1	Essential (primary) hypertension
I26.0	1	0.1	Pulmonary embolism with mention of cor pulmonale
I42.1	1	0.1	Obstructive hypertrophic cardiomyopathy
I50.9	2	0.2	Cardiac failure, unspecified
I51.7	1	0.1	Cardiomegaly
I51.8	2	0.2	Heart diseases
I82.8	1	0.1	Embolism/thrombosis of other specified veins
I95.8	1	0.1	Other hypotension
			Diseases of the respiratory system
J18.0	2	0.2	Bronchopneumonia
J80	1	0.1	Adult respiratory distress syndrome
J81	1	0.1	Pulmonary oedema or congestion
J96.0	1	0.1	Acute respiratory failure
J96.9	2	0.2	Respiratory failure/depression
R9.2	2	0.2	Cardio-respiratory failure/arrest
			Diseases of the liver
K56.6	1	0.1	Other & unspecified intestinal obstruction
K70	1	0.1	Alcoholic liver disease
K76.0	1	0.1	Fatty (change of) liver, not elsewhere specified

ICD-10	No. of cases (n = 824)	%	Description
			Injuries
S02.9	2	0.2	Fracture of skull & facial bones, part unspecified
S09.9	5	0.6	Head injuries unspecified
S18	1	0.1	Decapitation/traumatic amputation at neck level
S25.0	1	0.1	Injury of thoracic aorta
V02	1	0.1	Pedestrian injured in collision with 2/3 wheeled motor vehicle
V48.5	1	0.1	Driver injured in collision with fixed/stationary object
V89.2	2	0.2	Car driver injured in non-collision accident Person injured in unspecified motor vehicle accident – traffic
			Hanging
W76	5	0.6	Other accidental hanging and strangulation
X70	16	1.9	Intentional hanging
Y20	3	0.4	Hanging, strangulation & suffocation, undetermined intent
			Asphyxia
T17.9	5	0.6	Aspiration of gastric contents/foreign body in respiratory tract
T58	1	0.1	Asphyxiation from effects of carbon monoxide
T71	2	0.2	Asphyxiation
W79	3	0.4	Inhalation & ingestion of food – obstructing airway
			Drowning & submersion
W66	1	0.1	Whilst in bath tub
W74	1	0.1	Unspecified
X71	1	0.1	Intentional drowning
			Other
A41.9	2	0.2	Septicaemia, unspecified
G40.9	1	0.1	Epileptic seizures
G93.1	3	0.4	Brain damage, anoxic or hypoxic
T39.3	1	0.1	Poisoning, other non-steroidal anti-inflammatory
T40.1	1	0.1	Poisoning, heroin
T40.4	1	0.1	Poisoning, synthetic opioid analgesic
T68	1	0.1	Hypothermia
Y88.1	1	0.1	Misadventures to patients during surgical & medical procedures
R99	8	1.0	Unascertained

Where possible, causes of death have been grouped together in terms of the mechanisms of death. At present, although all causes of death on the death certificate (together with other information if available) are taken into consideration in classifying underlying cause of death, the principal cause of death is used here by np-SAD to allocate the ICD-10 code. In order to achieve a greater level of consistency, a hierarchical system was introduced for classifying the underlying cause of death using ICD-10 criteria for deaths involving multiple substances. Deaths that involve a combination of narcotics and other psychoactive drugs are coded as narcotic deaths. Where possible a code which specifies intentionality is used.

Annex SR2: np-SAD cases reported in July-December 2007 by coroner's jurisdiction (No. of cases, rate per 100,000 population (16 years old and over) and as a percentage of all inquests)

Coroner's Jurisdiction & county district	Number of np-SAD deaths Jul-Dec 2007	Semi-annual death rate per 100,000 population [1]	Annual % of all inquests held in 2007 [2]
Queen's Household	0	0.00	0.00
ENGLAND			
AVON	6	0.69	1.03
BEDFORDSHIRE	9	1.90	4.50
BERKSHIRE	-	-	-
BUCKINGHAMSHIRE			
Buckinghamshire	10	2.56	6.45
Milton Keynes	5	2.79	3.82
CAMBRIDGESHIRE			
North & East Cambridgeshire	4	2.86	7.69
Peterborough	4	3.10	3.92
South & West Cambridgeshire	5	1.44	2.28
CHESHIRE	15	1.84	2.50
CORNWALL			
Cornwall	19	4.34	5.03
Isles of Scilly	0	0.00	0.00
CUMBRIA			
North & West Cumbria	9	4.06	6.43
South & East Cumbria	1	0.53	0.57
DERBYSHIRE			
Derby & South Derbyshire	17	3.52	6.77
North Derbyshire	7	2.13	2.48
DEVON			
Exeter & Greater Devon	16	3.29	4.62
Plymouth & South West Devon	6	2.49	2.30
Torbay & South Devon	1	0.50	1.02
DORSET			
Bournemouth, Poole & Eastern Dorset	17	4.25	10.69
Western Dorset	1	0.53	1.22
DURHAM			
Darlington & South Durham	1	0.45	1.04
North Durham	2	0.74	1.03
EAST SUSSEX			
Brighton & Hove	18	8.48	9.00
East Sussex	4	0.96	1.43
ESSEX			
Essex & Thurrock	9	0.82	1.92
Southend & South East Essex	7	2.59	6.25
GLOUCESTERSHIRE	-	-	-
GREATER MANCHESTER			
Manchester	12	3.21	2.67
North Manchester	8	1.67	2.41
South Manchester	3	0.53	0.67
West Manchester	7	1.11	1.32

Coroner's Jurisdiction & county district	Number of np-SAD deaths Jul-Dec 2007	Semi-annual death rate per 100,000 population [1]	Annual % of all inquests held in 2007 [2]
HAMPSHIRE			
Central Hampshire	2	0.72	1.08
North East Hampshire	6	1.90	5.41
Portsmouth & South East Hampshire	15	3.28	5.47
Southampton & New Forest	11	3.25	6.15
HEREFORDSHIRE	1	0.68	1.19
HERTFORDSHIRE	3	0.35	0.82
HUMBERSIDE			
East Riding & Hull	10	2.07	4.69
ISLE OF WIGHT	2	1.72	2.04
KENT			
Central & South East Kent	9	3.39	6.08
Mid Kent & Medway	2	0.48	0.93
North East Kent	-	-	-
North West Kent	-	-	-
LANCASHIRE			
Blackburn, Hyndburn & Ribble Valley	8	3.66	3.45
Blackpool & the Fylde	16	8.85	11.11
East Lancashire	4	2.06	2.58
Preston & West Lancashire	12	2.07	2.78
LEICESTERSHIRE			
Leicester City & South Leicestershire	2	0.48	0.37
Rutland & North Leicestershire	1	0.27	0.91
LINCOLNSHIRE			
Boston & Spalding	9	10.46	13.85
North Lincolnshire & Grimsby	3	1.17	2.65
Spilsby & Louth	3	2.31	6.12
Stamford	1	0.94	3.23
West Lincolnshire	8	3.66	7.84
LONDON			
City of London	0	0.00	0.00
Eastern London	11	1.25	3.21
Inner North London	28	4.08	5.22
Inner South London	30	3.60	5.99
Inner West London	6	0.80	1.46
Northern London	17	1.60	4.30
Southern London	9	1.08	3.09
Western London	33	3.17	8.29
MERSEYSIDE			
Knowsley, St Helens & Sefton	3	0.61	1.33
Liverpool	12	3.35	2.49
Wirral	11	4.38	3.83
NORFOLK			
Greater Norfolk	21	3.39	5.74
Great Yarmouth	-	-	-
NORTHAMPTONSHIRE	15	2.76	6.41
NORTHUMBERLAND			
North Northumberland	6	5.25	3.70
South Northumberland	-	-	-
NORTH YORKSHIRE			
North Yorkshire Eastern	3	1.48	2.26
North Yorkshire Western	1	0.70	0.88
York	-	-	-
NOTTINGHAMSHIRE	-	-	-
OXFORDSHIRE	6	1.16	1.66

Coroner's Jurisdiction & county district	Number of np-SAD deaths Jul-Dec 2007	Semi-annual death rate per 100,000 population [1]	Annual % of all inquests held in 2007 [2]
SHROPSHIRE			
Mid & North Shropshire	1	0.62	1.01
South Shropshire	0	0.00	0.00
The Wrekin	3	2.34	4.41
SOMERSET			
Eastern Somerset	2	0.92	1.87
Western Somerset	3	1.43	2.21
SOUTH YORKSHIRE			
South Yorkshire East	6	1.37	1.91
South Yorkshire West	14	2.27	3.13
STAFFORDSHIRE			
South Staffordshire	10	2.03	3.40
Stoke-on-Trent & North Staffordshire	10	2.66	2.28
SUFFOLK	14	2.43	5.07
SURREY	14	1.58	3.95
TEESSIDE			
Hartlepool	1	1.37	1.75
Teesside	2	0.53	0.65
TYNE & WEAR			
Gateshead & South Tyneside	-	-	-
Newcastle-upon-Tyne	-	-	-
North Tyneside	-	-	-
Sunderland	1	0.44	0.35
WARWICKSHIRE	4	0.93	1.87
WEST MIDLANDS			
Birmingham	10	1.05	1.04
Black Country	4	0.59	1.32
Coventry	3	1.22	1.47
Wolverhampton	0	0.00	0.00
WEST SUSSEX	18	2.84	6.14
West YORKSHIRE			
West Yorkshire Eastern	25	2.82	5.02
West Yorkshire Western	21	2.43	5.20
WILTSHIRE	3	0.58	1.08
WORCESTERSHIRE	4	0.88	1.52
WALES			
Bridgend & Glamorgan Valleys	8	2.34	2.42
Cardiff & the Vale of Glamorgan	4	1.11	0.74
Carmarthenshire	2	1.37	2.63
Central North Wales	-	-	-
Ceredigion	0	0.00	0.00
Gwent	7	1.55	5.15
Neath & Port Talbot	2	1.78	3.45
North East Wales	-	-	-
North West Wales	5	3.26	3.79
Pembrokeshire	6	6.28	8.96
Powys	0	0.00	0.00
Swansea	2	1.07	1.28
NORTHERN IRELAND			
Northern Ireland	39	2.83	-
THE ISLANDS			
GUERNSEY	0	0.00	0.00
JERSEY	2	2.68	4.76
ISLE OF MAN	2	3.02	10.00

Coroner's Jurisdiction & county district	Number of np-SAD deaths Jul-Dec 2007	Semi-annual death rate per 100,000 population (1)	Annual % of all inquests held in 2007 (2)
SCOTLAND			
ARGYLL & CLYDE			
Dumbarton	12	12.33	-

Please note that (0) refers to either no drug-related deaths or death rates of less than 0.01, whilst (–) indicates that no reports were submitted for the specific period from that jurisdiction. In subsequent reports these rates may increase as more inquests on deaths in 2007 are held and/or notified to the np-SAD. These rates should therefore be regarded as minimum rates.

(1) The rate per 100,000 population is based on published mid-year population estimates for local government administrative areas for the years in question. However, the areas covered by 23 of the coroners' jurisdictions in England and Wales, as well as the area covered by the Procurators Fiscal region in Dumbarton, are not co-terminous with these boundaries and cover parts of such areas (see Appendix 1). Where administrative areas are split between jurisdictions, the estimated population has been divided into two or three as applicable. However, this means that the population of some coroners' jurisdictions may be either over- or under-estimated. It is necessary to make such assumptions until more accurate figures can be obtained or calculated.

(2) Inquests held on all ages.

(3) The following amalgamations of coroner's jurisdictions took place during the period covered by this report: In Norfolk, King's Lynn and Norwich & Central Norfolk to form Greater Norfolk (6 April 2007); in Cumbria, the three jurisdictions of North East Cumbria, Southern Cumbria & Furness, and Western Cumbria to form two new areas - North & West Cumbria and South & East Cumbria (1 May 2007).

Annex SR3: Changes in semi-annual death rate per 100,000 population for np-SAD cases, 2005-2007 (16 years old and over)

Coroner's jurisdiction & county district	Semi-annual death rate per 100,000 population[1, 2]					
	Jan-June 2005	Jul-Dec 2005	Jan-June 2006	Jul-Dec 2006	Jan-June 2007	Jul-Dec 2007
Queen's Household	0.00	0.00	0.00	0.00	0.00	0.00
ENGLAND						
AVON	1.33	0.85	0.60	1.09	0.92	0.69
BEDFORDSHIRE	2.20	2.64	3.04	1.96	2.56	1.90
BERKSHIRE	-	0.00	0.15	-	-	-
BUCKINGHAMSHIRE						
Buckinghamshire	2.90	1.85	0.79	1.57	2.05	2.56
Milton Keynes	1.17	3.54	1.13	2.92	1.11	2.79
CAMBRIDGESHIRE						
North & East Cambridgeshire	0.76	5.31	1.49	1.49	2.86	2.86
Peterborough	1.60	2.39	0.79	4.77	4.64	3.10
South & West Cambridgeshire	1.19	0.00	0.58	0.29	0.86	1.44
CHESHIRE	1.50	2.38	2.62	1.87	1.72	1.84
CORNWALL						
Cornwall	1.88	0.94	0.00	1.17	4.11	4.34
Isles of Scilly	0.00	0.00	0.00	0.00	0.00	0.00
CUMBRIA						
North & West Cumbria	1.34	2.68	3.18	4.54	3.61	4.06
South & East Cumbria	0.54	1.62	2.12	1.59	1.59	0.53
DERBYSHIRE						
Derby & South Derbyshire	1.07	2.78	1.28	1.28	2.28	3.52
North Derbyshire	2.80	2.49	3.71	2.78	1.22	2.13
DEVON						
Exeter & Greater Devon	3.97	5.01	3.72	3.10	2.58	3.29
Plymouth & South West Devon	-	-	2.52	3.36	4.56	2.49
Torbay & South Devon	1.03	2.57	1.02	1.54	1.51	0.50
DORSET						
Bournemouth, Poole & Eastern Dorset	2.02	1.52	3.28	3.78	3.50	4.25
Western Dorset	-	1.08	3.74	0.54	2.64	0.53
DURHAM						
Darlington & South Durham	1.36	1.81	0.90	0.45	0.45	0.45
North Durham	0.38	0.76	1.50	2.23	1.47	0.74
EAST SUSSEX						
Brighton & Hove	9.37	10.78	7.97	10.78	9.89	8.48
East Sussex	2.72	0.74	2.46	1.97	3.36	0.96
ESSEX						
Essex & Thurrock	1.05	0.48	0.38	0.57	0.91	0.82
Southend & South East Essex	0.76	3.05	2.66	1.90	2.95	2.59
GLOUCESTERSHIRE	0.21	1.07	1.70	1.50	-	-
GREATER MANCHESTER						
Manchester	-	0.28	3.08	1.40	2.68	3.21
North Manchester	1.26	1.47	0.84	1.26	1.25	1.67
South Manchester	3.51	2.98	1.40	2.28	1.40	0.53
West Manchester	0.95	0.48	0.16	3.01	0.16	1.11

Coroner's Jurisdiction & county district	Jan-June 2005	Jul-Dec 2005	Jan-June 2006	Jul-Dec 2006	Jan-June 2007	Jul-Dec 2007
HAMPSHIRE						
Central Hampshire	1.47	2.58	1.09	1.45	0.72	0.72
North East Hampshire	1.95	1.95	0.97	2.26	0.32	1.90
Portsmouth & South East Hampshire	1.80	3.15	3.38	1.80	2.20	3.28
Southampton & New Forest	5.56	2.78	3.69	5.53	0.30	3.25
HEREFORDSHIRE	2.05	1.38	0.68	0.00	0.00	0.68
HERTFORDSHIRE	2.53	1.57	1.20	1.44	1.17	0.35
HUMBERSIDE						
East Riding & Hull	6.02	2.80	2.77	1.71	0.83	2.07
ISLE OF WIGHT	0.00	2.63	2.59	4.31	3.45	1.72
KENT						
Central & South East Kent	1.55	0.78	3.06	2.30	3.39	3.39
Mid Kent & Medway	2.40	2.40	0.49	2.20	1.93	0.48
North East Kent	-	-	-	-	-	-
North West Kent	-	-	-	-	-	-
LANCASHIRE						
Blackburn, Hyndburn & Ribble Valley	0.00	4.19	2.79	2.79	3.66	3.66
Blackpool & the Fylde	7.76	5.01	9.42	5.54	8.30	8.85
East Lancashire	4.71	5.24	6.19	4.18	4.62	2.06
Preston & West Lancashire	0.36	0.36	1.06	1.06	1.21	2.07
LEICESTERSHIRE						
Leicester City & South Leicestershire	-	-	1.22	1.20	0.95	0.48
Rutland & North Leicestershire	1.14	0.28	0.28	1.40	0.82	0.27
LINCOLNSHIRE						
Boston & Spalding	1.75	1.75	-	-	1.16	10.46
North Lincolnshire & Grimsby	3.17	1.99	0.79	0.00	0.00	1.17
Spilsby & Louth	0.79	0.00	0.79	0.00	2.31	2.31
Stamford	0.00	0.00	0.00	0.00	0.00	0.94
West Lincolnshire	3.35	3.35	1.42	2.83	4.12	3.66
LONDON						
City of London	-	0.00	0.00	0.00	0.00	0.00
Eastern London	0.69	1.27	2.40	1.60	0.57	1.25
Inner North London	4.18	3.88	2.66	3.13	3.49	4.08
Inner South London	2.13	4.34	5.58	1.98	2.76	3.60
Inner West London	0.94	0.67	0.13	-	0.66	0.80
Northern London	2.19	2.48	2.08	1.04	2.17	1.60
Southern London	0.97	1.45	0.48	1.44	0.48	1.08
Western London	5.08	4.70	3.08	3.17	4.51	3.17
MERSEYSIDE						
Knowsley, St Helens & Sefton	2.47	2.46	2.05	1.64	1.02	0.61
Liverpool	7.74	4.70	3.82	4.10	2.79	3.35
Wirral	0.40	3.18	2.38	2.38	1.59	4.38
NORFOLK						
Greater Norfolk	4.96	2.15	2.12	0.82	0.97	3.39
Great Yarmouth	-	-	-	-	-	-
NORTHAMPTONSHIRE	2.89	1.56	2.12	0.77	2.21	2.76
NORTHUMBERLAND						
North Northumberland	7.38	4.22	5.29	4.22	6.30	5.25
South Northumberland	0.62	-	-	-	-	-
NORTH YORKSHIRE						
North Yorkshire Eastern	1.50	1.00	1.00	0.00	0.49	1.48
North Yorkshire Western	0.37	2.58	0.74	1.47	0.00	0.88

Coroner's Jurisdiction & county district	Jan-June 2005	Jul-Dec 2005	Jan-June 2006	Jul-Dec 2006	Jan-June 2007	Jul-Dec 2007
York	4.49	2.60	1.28	-	-	-
NOTTINGHAMSHIRE	0.83	0.83	0.47	0.24	0.34	-
OXFORDSHIRE	1.18	1.77	1.18	0.20	0.97	1.16
SHROPSHIRE						
Mid & North Shropshire	2.54	2.54	1.27	3.17	0.62	0.62
South Shropshire	1.28	0.00	0.00	0.00	-	0.00
The Wrekin	0.79	1.58	2.36	1.57	0.00	2.34
SOMERSET						
Eastern Somerset	0.95	1.42	0.47	0.00	1.84	0.92
Western Somerset	3.43	1.47	2.43	1.46	1.43	1.43
SOUTH YORKSHIRE						
South Yorkshire East	1.61	1.16	2.76	2.07	2.28	1.37
South Yorkshire West	2.98	3.18	3.97	3.31	2.43	2.27
STAFFORDSHIRE						
South Staffordshire	1.24	0.83	1.24	0.62	0.81	2.03
Stoke-on-Trent & North Staffordshire	2.16	2.16	2.15	1.40	3.19	2.66
SUFFOLK	2.86	2.50	0.54	1.07	2.77	2.43
SURREY	0.35	1.16	0.81	1.27	1.35	1.58
TEESSIDE						
Hartlepool	-	2.81	5.52	6.91	5.47	1.37
Teesside	2.98	5.41	3.79	5.60	3.72	0.53
TYNE & WEAR						
Gateshead & South Tyneside	2.86	1.43	1.07	3.22	0.71	-
Newcastle-upon-Tyne	7.01	3.50	3.13	5.25	4.00	-
North Tyneside	0.64	-	-	-	0.62	-
Sunderland	1.73	0.87	3.49	3.03	1.74	0.44
WARWICKSHIRE	0.92	-	1.61	0.46	2.10	0.93
WEST MIDLANDS						
Birmingham	2.03	1.29	0.11	2.77	2.31	1.05
Black Country	0.59	0.90	0.59	1.04	0.89	0.59
Coventry	0.41	0.41	2.03	2.05	0.81	1.22
Wolverhampton	1.04	4.16	1.56	1.56	3.16	0.00
WEST SUSSEX	2.57	2.43	1.91	2.55	2.21	2.84
WEST YORKSHIRE						
West Yorkshire Eastern	2.98	3.19	3.19	2.95	3.27	2.82
West Yorkshire Western	2.27	2.39	0.95	1.66	2.66	2.43
WILTSHIRE	1.20	1.00	0.59	0.20	0.19	0.58
WORCESTERSHIRE	3.10	1.79	1.11	1.55	1.10	0.88
WALES						
Bridgend & Glamorgan Valleys	1.50	2.69	1.79	2.69	1.75	2.34
Cardiff & the Vale of Glamorgan	-	-	0.84	0.28	0.28	1.11
Carmarthenshire	2.08	0.69	3.45	0.69	0.00	1.37
Central North Wales	-	-	-	-	-	-
Ceredigion	-	3.07	6.18	1.52	0.00	0.00
Gwent	1.36	0.90	0.23	1.35	0.22	1.55
Neath & Port Talbot	4.54	3.63	0.91	3.64	2.68	1.78
North East Wales	-	-	-	-	-	-
North West Wales	0.66	3.30	3.93	3.94	2.61	3.26
Pembrokeshire	-	1.06	2.11	1.06	1.05	6.28
Powys	-	1.88	0.93	0.00	0.92	0.00
Swansea	-	-	-	5.40	2.66	1.07

Coroner's Jurisdiction & county district	Jan-June 2005	Jul-Dec 2005	Jan-June 2006	Jul-Dec 2006	Jan-June 2007	Jul-Dec 2007
NORTHERN IRELAND						
Northern Ireland	-	-		0.00	2.47	2.83
THE ISLANDS						
GUERNSEY	0.00	6.13	0.00	0.00	0.00	0.00
JERSEY	0.00	4.17	1.39	4.10	10.74	2.68
ISLE OF MAN	11.32	0.00	0.00	1.53	3.02	3.02
SCOTLAND						
ARGYLL & CLYDE						
Dumbarton	9.49	0.00	4.12	3.09	5.14	12.33

* Constituent areas have not reported consistently for every period

Please note that (0) refers to either no drug-related deaths or death rates of less than 0.01, whilst (–) indicates that no reports were submitted for the specific period from that jurisdiction. In subsequent reports these rates may increase if more inquests on deaths are notified to the np-SAD after the preparation of the reports. These rates should be regarded as minimum rates.

(1) The rate per 100,000 population is based on published mid-year population estimates for local government administrative areas for the years in question. However, the areas covered by 20 of the coroners' jurisdictions in England and Wales, as well as the area covered by the Procurators Fiscal region in Dumbarton, are not co-terminous with these boundaries and cover parts of such areas (see Appendix 1). Where administrative areas are split between jurisdictions, the estimated population has been divided into two or three as applicable. However, this means that the population of some coroners' jurisdictions may be either over- or under-estimated. It is necessary to make such assumptions until more accurate figures can be obtained or calculated.

(2) These rates are based on the number of inquests reported to the np-SAD during the relevant 6-month period. They do not, therefore, reflect the workload of the coroners in terms of the number of drug-related death inquests held in these periods. Furthermore, details of additional inquests held in these periods may be subsequently notified to the np-SAD.

(3) The following amalgamations of coroner's jurisdictions took place during the period covered by this report: In Norfolk, King's Lynn and Norwich & Central Norfolk to form Greater Norfolk (6 April 2007); in Cumbria, the three jurisdictions of North East Cumbria, Southern Cumbria & Furness, and Western Cumbria to form two new areas - North & West Cumbria and South & East Cumbria (1 May 2007).

Annex SR4: np-SAD cases in July-December 2007 by Drug and (Alcohol) Action Team area (16 years and over)

Drug and Alcohol Action Team	Number and annual death rate per 100,000 population – usual area of residence		Number and annual death rate per 100,000 population – place of death	
	No	Rate	No	Rate
ENGLAND				
NORTH EAST				
County Durham	3	0.72	3	0.72
Darlington	0	0.00	0	0.00
Gateshead	-	-	-	-
Hartlepool	1	1.37	1	1.37
Middlesbrough	0	0.00	0	0.00
Newcastle-upon-Tyne*	1	0.44	1	0.44
North Tyneside	-	-	-	-
Northumberland	4	1.56	5	1.95
Redcar and Cleveland	2	1.77	2	1.77
South Tyneside	-	-	-	-
Stockton on Tees	0	0.00	0	0.00
Sunderland	1	0.44	1	0.44
NORTH WEST				
Blackburn with Darwen	6	5.63	6	5.63
Blackpool	13	11.17	13	11.17
Bolton	3	1.45	2	0.96
Bury	2	1.37	2	1.37
Cheshire	6	1.07	8	1.42
Cumbria	10	2.44	10	2.44
Halton	4	4.21	4	4.21
Knowsley	1	0.83	1	0.83
Lancashire	20	2.11	21	2.21
Liverpool	11	3.07	12	3.35
Manchester	11	2.94	13	3.48
Oldham	1	0.58	2	1.17
Rochdale	5	3.08	4	2.46
Salford	1	0.56	0	0.00
Sefton	2	0.88	1	0.44
St Helens	1	0.70	1	0.70
Stockport	0	0.00	0	0.00
Tameside	2	1.16	2	1.16
Trafford	1	0.59	3	1.76
Warrington	3	1.91	3	1.91
Wigan	4	1.62	5	2.02
Wirral	11	4.38	11	4.38
YORKSHIRE AND HUMBER				
Barnsley	4	2.20	4	2.20
Bradford	8	2.08	12	3.11
Calderdale	2	1.25	0	0.00
Doncaster	5	2.13	6	2.56
East Riding of Yorkshire	2	0.73	2	0.73
Kingston-upon-Hull	6	2.88	8	3.83
Kirklees	10	3.14	10	3.14
Leeds	15	2.39	11	1.76
North East Lincolnshire	0	0.00	0	0.00
North Lincolnshire	3	2.32	3	2.32

Drug and Alcohol Action Team	Number and annual death rate per 100,000 population – usual area of residence		Number and annual death rate per 100,000 population – place of death	
	No	Rate	No	Rate
North Yorkshire*	4	0.82	3	0.61
Rotherham	1	0.49	1	0.49
Sheffield	10	2.29	10	2.29
Wakefield	10	3.83	13	4.98
York	-	-	-	-
EAST MIDLANDS				
Derby	9	4.70	10	5.23
Derbyshire	15	2.42	13	2.10
Leicester*	2	0.86	2	0.86
Leicestershire	2	0.38	1	0.19
Lincolnshire	22	3.86	20	3.51
Northamptonshire	14	2.57	15	2.76
Nottingham	-	-	-	-
Nottinghamshire	-	-	-	-
Rutland	0	0.00	0	0.00
WEST MIDLANDS				
Birmingham	11	1.40	11	1.40
Coventry	3	1.22	3	1.22
Dudley	2	0.81	2	0.81
Herefordshire	1	0.68	1	0.68
Sandwell	1	0.44	1	0.44
Shropshire	1	0.42	1	0.42
Solihull	0	0.00	0	0.00
Staffordshire	14	2.07	13	1.92
Stoke-on-Trent	8	4.13	7	3.62
Telford and Wrekin	3	2.34	3	2.34
Walsall	1	0.50	1	0.50
Warwickshire	5	1.17	4	0.93
Wolverhampton	0	0.00	0	0.00
Worcestershire	3	0.66	2	0.44
EAST				
Bedfordshire	5	1.53	4	1.23
Cambridgeshire	9	1.85	9	1.85
Essex	12	1.08	9	0.81
Hertfordshire	4	0.47	3	0.35
Luton	3	2.04	5	3.40
Norfolk*	23	3.30	21	3.01
Peterborough	2	1.55	4	3.10
Southend-on-Sea	3	2.29	5	3.82
Suffolk	12	2.08	14	2.43
Thurrock	1	0.85	1	0.85
LONDON				
Inner London				
Camden	9	4.60	9	4.60
City of London	0	0.00	0	0.00
Hackney	4	2.45	4	2.45
Hammersmith and Fulham	7	4.84	7	4.84
Haringey	8	4.42	4	2.21
Islington	8	5.09	11	7.00
Kensington and Chelsea	2	1.33	1	0.66
Lambeth	8	3.56	11	4.90
Lewisham	5	2.41	4	1.93
Newham*	2	1.05	3	1.58

Drug and Alcohol Action Team	Number and annual death rate per 100,000 population – usual area of residence		Number and annual death rate per 100,000 population – place of death	
	No	Rate	No	Rate
Southwark	3	1.33	6	2.67
Tower Hamlets	5	2.92	6	3.51
Wandsworth	0	0.00	1	0.42
Westminster	4	1.97	5	2.46
Outer London				
Barking and Dagenham*	2	1.58	1	0.79
Barnet	6	2.29	6	2.29
Bexley	2	1.13	1	0.56
Brent	1	0.46	7	3.20
Bromley	3	1.24	3	1.24
Croydon	4	1.49	5	1.86
Ealing	2	0.81	2	0.81
Enfield	4	1.78	6	2.67
Greenwich	4	2.27	7	3.97
Harrow	1	0.58	2	1.16
Havering*	2	1.08	1	0.54
Hillingdon	7	3.51	8	4.02
Hounslow	8	4.51	9	5.08
Kingston-upon-Thames	3	2.32	4	3.10
Merton	0	0.00	0	0.00
Redbridge	2	1.00	2	1.00
Richmond-upon-Thames	4	2.76	3	2.07
Sutton	0	0.00	0	0.00
Waltham Forest*	2	1.14	4	2.29
SOUTH EAST				
Bracknell Forest*	-	-	-	-
Brighton and Hove	18	8.48	17	8.01
Buckinghamshire	9	2.31	10	2.56
East Sussex	4	0.96	4	0.96
Hampshire	22	2.13	17	1.64
Isle of Wight	2	1.72	2	1.72
Kent*	10	0.89	10	0.89
Medway towns	2	1.00	1	0.50
Milton Keynes	5	2.79	5	2.79
Oxfordshire	5	0.97	6	1.16
Portsmouth	4	2.44	7	4.28
Reading*	-	-	-	-
Slough*	-	-	-	-
Southampton	8	4.15	10	5.18
Surrey	13	1.47	14	1.58
West Berkshire*	1	0.84	-	-
West Sussex	22	3.48	18	2.84
Windsor and Maidenhead*	-	-	-	-
Wokingham*	1	0.80	-	-
SOUTH WEST				
Bath and North East Somerset	1	0.68	3	2.03
Bournemouth	10	7.27	13	9.46
Bristol	3	0.87	2	0.58
Cornwall & Isles of Scilly	18	4.09	18	4.09
Devon	14	2.25	14	2.25
Dorset	5	1.48	1	0.30
Gloucestershire*	-	-	-	-
North Somerset	1	0.60	1	0.60

Drug and Alcohol Action Team	National and annual death rate per 100,000 population – usual area of residence		National and annual death rate per 100,000 population – place of death	
	No	Rate	No	Rate
Plymouth	7	3.39	7	3.39
Poole	2	1.76	3	2.64
Somerset	6	8.00	5	1.17
South Gloucestershire	0	0.00	1	0.48
Swindon	1	0.66	1	0.66
Torbay	1	0.90	1	0.90
Wiltshire	2	0.55	2	0.55
WALES				
Bro Taf	9	1.52	7	1.18
Dyfed Powys	5	1.20	0.5	0.12
Gwent	7	1.55	7	1.55
Iechyd Morgannwg	5	1.22	5	1.22
North Wales	6	1.08	5	0.90
NORTHERN IRELAND				
Eastern	15	2.80	15	2.80
Northern	9	2.55	11	3.11
Southern	7	2.66	7	2.66
Western	6	2.64	6	2.64
THE ISLANDS				
GUERNSEY	0	0.00	0	0.00
JERSEY	2	3.02	2	3.02
ISLE OF MAN	2	2.68	2	2.68

Note: In addition there were a number of cases that could not be allocated to specific DA(A)T areas because they were of no fixed abode and/or the jurisdiction in which the inquest was held covers more than one DA(A)T. Some DA(A)Ts are covered by coroner's jurisdictions that did not submit information to the np-SAD; they are marked thus - *.

Annex SR5: Profile of cases meeting criteria for monitoring the UK Drug Strategy, July - December 2007

Introduction

This annex has been compiled at the request of the Department of Health to enable them to monitor progress against the UK Drug Strategy target for reducing drug-related deaths. Whilst the official target is being measured by reference to figures compiled by the Office for National Statistics (ONS), information generated by cases notified by coroners to the np-SAD can complement their data.

Definition of cases

The definition of a drug-related death adopted for the UK Drug Strategy is somewhat narrower than that for an np-SAD case (see Section II above). It is possible to derive information on this narrower basis by operationalising the np-SAD case definition using the method described below. The np-SAD approach is to exclude two specific categories from its case definition; those remaining are regarded as meeting the criteria for the UK government definition. The two categories excluded from the np-SAD cases are; (a) deaths of non-drug abusers where no Controlled Drugs were found at post mortem or where a specific compound analgesics was found at post mortem; and (b) deaths of drug abusers where no Controlled Drugs were found at post mortem or where a specific compound analgesics was found at post mortem and the mechanism of death was hanging, drowning, accident, etc.

For the purposes of this annex, the np-SAD has closely followed the same approach as the Office for National Statistics and the General Register Office for Scotland in respect of the compound analgesics not treated as Controlled Drugs, the exception being that of codeine. This cannot be excluded from our consideration because it is a by-product of the degeneration of heroin in the body and thus may represent the consumption of heroin rather than codeine. This will not have affected many cases.

Profile of cases

The following analysis looks at inquests held in the second half of 2007 for deaths in England and Wales which meet the above selection criteria (652/824 or 79.1% of all np-SAD cases reported on here). Demographic details and a summary of principal drugs implicated in death are presented below.

1. Demography

The majority of cases were male (80%). The median age at death was 36.5 years (semi-inter quartile range = 7.4), with about three-quarters (78%) being under the age of 45 years. Where ethnicity was known, the vast majority (92.6%) were White. Where addict status was known, the majority (71.6%) had a history of drug-dependence or abuse. Just over half (51%) of cases were unemployed and 43% of cases were living alone and a similar proportion living with others at the time of their death (Table SR5.1).

3. *Location of death*

The majority of cases (65%) died at a defined residential address (e.g. the deceased's home address or other private residential address), just under one-fifth (21%) died in hospital and the remainder (14%) died elsewhere (e.g. in a public place).

Table SR5.1: Demographic variables for inquests reported to np-SAD meeting the criteria for monitoring the UK Drug Strategy, England & Wales, July – December 2007

Variable	Category	Number (%)
Total		652 (100.0)
Gender	Male	522 (80.1)
	Female	130 (19.9)
Employment status	Unemployed	335 (51.4)
	Employed	197 (30.2)
	Childcare/house person	9 (1.4)
	Student	5 (0.8)
	Retired/sickness/invalidity	55(8.4)
	Other	3 (0.5)
	Not known	48 (7.4)
Living arrangements	Alone	282 (43.3)
	With others	283 (43.4)
	No fixed abode	33 (5.1)
	Other	27 (4.1)
	Not known	27 (4.1)

3. Substances implicated in death

Psychoactive substances were implicated in 623/652 deaths (95.6%). The principal substances implicated in drug-related deaths were: heroin/morphine (54%) and alcohol in combination with other drugs (37%). Other classes of drugs making a sizeable contribution to deaths were: other methadone (22%); opiates/opioid analgesics (20%); hypnotics/sedatives (18%); cocaine (17%); and anti-depressants (12%). Heroin/ morphine as the sole implicated drug accounted for 17% of deaths. The breakdown of psychoactive substances implicated in death is presented in Table SR5.2.

Table SR5.2: Psychoactive substances implicated in death for inquests reported to np-SAD meeting the criteria for monitoring the UK Drug Strategy, England & Wales, July – December 2007

Drug category	Number of cases where no other substance was implicated	Number of cases where drug was implicated
	No. (%)	No. (%)
Total of cases with psychoactive drug implicated	623 (100.0)	623 (100.0)
Alcohol-in-combination(1)	-	241 (37.0)
Amphetamines	4 (0.6)	23 (3.5)
Anti-depressants	4 (0.6)	81 (12.4)
Anti-epileptics	0 (0.0)	6 (0.9)
Anti-psychotics	0 (0.0)	10 (1.5)
Cannabis	3 (0.5)	24 (3.7)
Cocaine	25 (3.8)	111 (17.0)
Ecstasy-type drugs	6 (0.9)	20 (3.1)
GHB	1 (0.2)	3 (0.5)
Heroin/morphine	112 (17.2)	350 (53.7)
Hypnotic/sedatives	6 (0.9)	114 (17.5)
Methadone	27 (4.1)	145 (22.2)
Other opiates/opioid analgesics	22 (3.4)	129 (19.8)
(1) Alcohol on its own does not meet the criteria for an np-SAD case.		

4. Age and drug implicated in death

In cases aged 15-44 years, heroin/morphine (56.8%) was the most frequently mentioned drug contributing to fatality. In those aged 45 years and over, heroin/morphine (42.9%), alcohol-in-combination (38.1%), and other opiates/opioid analgesics (35.4%) were the most frequently mentioned as being implicated (Table SR5.3).

Table SR5.3: Age and drug implicated in deaths for inquests reported to np-SAD meeting the criteria for monitoring the UK Drug Strategy, England & Wales, July – December 2007

Age-group (years)	Number (%) where implicated	Drug category (alone or in combination) most frequently implicated in each age group
All ages	623 (100.0)	Heroin/morphine (53.7%)
14 & under	0 (0.0)	-
15–24	68 (10.8)	Heroin/morphine (45.6%)
25-34	200 (32.1)	Heroin/morphine (66.0%)
35-44	210 (33.4)	Heroin/morphine (59.0%)
45-54	95 (15.2)	Heroin/morphine (53.7%)
55-64	33 (5.3)	Other opiates/opioid analgesics (35.3%) Alcohol-in-combination (35.3%)
65 & over	17 (2.7)	Other opiates/opioid analgesics (52.9%)

5. Underlying cause(s) of death

The proportions of ICD-10 categories of underlying cause of death were as follows:

- Accidental poisoning (X40-X47): 68.1%
- Intentional self-poisoning (X60-X67): 9.4%
- Poisonings of undetermined intent (Y10-Y14): 9.5%
- Other (e.g. natural causes, drowning, hanging, unascertained): 13.0%

6. Manner of death

The manner of death in these cases was considered to be as follows:

- Natural: 1.5%
- Accidental: 76.7%
- Suicidal: 13.0%
- Homicidal: 0.2%
- Undetermined: 8.1%
- Unclassified/not specified: 0.5%

Appendices

Appendix 1: The *national programme* on Substance Abuse Deaths (np-SAD)

Aims and objectives

The Programme's principal aim is to reduce and prevent drug-related deaths in the UK due to the misuse of drugs, both licit and illicit, by collecting, analysing and disseminating information on the extent and nature of death. The Programme offers a comprehensive prevention package to Drug (and Alcohol) Action Teams (D(A)ATs), Primary Care Trusts (PCTs) and Strategic Health Authorities (SHAs) with a mission to tackle the problem of drug-related deaths.

The Programme's objectives are to:

- Collect and collate drug-related mortality data
- Develop and maintain a computerised surveillance system
- Identify substances implicated in drug-related deaths – including new drugs and new combinations
- Monitor and examine patterns and trends, e.g. geographic, demographic, substances implicated in death, method of death
- Act as an early warning system for new trends in mortality and drug misuse
- Use data as an indicator to estimate the prevalence of substance-related problems and assess the hazards associated with substance abuse
- Collaborate with relevant agencies in research on substance-related mortality locally, nationally and internationally
- Inform and facilitate discussion on the prevention of drug-related deaths, whether accidental or intentional
- Provide data for local and national drug abuse policy formulation and programme planning
- Disseminate information on drug-related mortality to the scientific community, clinicians, policy makers and other interested parties

np-SAD database

The Coroners Drug-Related Deaths Database was established in conjunction with the Home Office, who lead on the UK Government's drug strategy, following the closure of the national UK Addicts Index. The purpose of the database is to provide information for the management of a national surveillance system to monitor drug-related deaths reported by coroners and procurators fiscal. Data are sent to the np-SAD on a standard reporting form (see below).

Surveillance data management

Data collection

All coroners in the UK (see Appendix 1) are issued with copies of the standard data collection form (see Appendix 2). They are invited to complete the forms on all deaths that meet the criteria described in this report and return them to the np-SAD at the ICDP office at St. George's, University of London for coding and entry onto the database.

Data submission is mostly directly on paper by coroners or their staff. There is also manual completion of the np-SAD data collection form or print-out of completed computer-generated forms using bespoke software. Forms are submitted when inquests are complete – either singly or in batches. Some data are received electronically. Manual extraction of data by team members is undertaken at some coroners' courts – mostly in London.

Data entry and coding

A great deal of consideration was given to the area of data coding to ensure that comparison with other databases was possible and that the final analyses would be useful to readers. For example, all cases were coded for area of residence of the deceased. Causes of death (immediate and underlying) are re-coded according to ICD-10. All drugs (i.e. those implicated in the death) are coded separately according to therapeutic drug category (i.e. hypnotics/sedatives, anti-depressants, opiates, etc).

Statistical analysis

Due to the nature of the information collected by the programme, i.e. drug-related deaths as reported by the coroners, this is an observational study. Hence, statistical methods employed are based on proportions and ratios. Where the data include proportions

of incidence for particular groups of interest, the ratio of the proportions forms a measure of the relative risk in one group compared with that of another. These scales of measurement are generally known as point estimates. Although point estimates can be calculated they do not represent the 'true' values. Each point estimate is subject to random variation. Confidence intervals (CI) provide an indication of the range in the true values for the population as a whole, which would be expected in future investigations. The methods used for quantitative data relied mainly on complex assumptions of distributional form. It may be the case that the assumptions are not always satisfied. In such cases, methods known as distribution-free methods can be applied, also known as non-parametric tests (e.g. Mann-Whitney). The data were analysed using SPSS™ for Windows version 15.

Data storage

The anonymised data-set for coroners is held on a SPSS database for analysis. All data held, whether electronic or paper, is stored securely and treated as confidential. Access is restricted to Programme staff; only aggregated and anonymised data are released to third parties.

What is an np-SAD case?

An np-SAD case is defined as a relevant death where any of the following criteria are met at a completed inquest, fatal accident inquiry or similar investigation:

- One or more psychoactive substances* directly** implicated in death;
- History of dependence or abuse of psychoactive drugs;
- Presence of Controlled Drugs*** at post mortem; or
- Cases of deaths directly due to drugs but with no inquest.

Deaths where solvents and other volatile substances are implicated alone are NOT included. Information on this is collected by the Department of Community Health Sciences at St. George's, University of London; further information can be seen at http://www.vsareport.org. Alcohol is included only when implicated in combination with other qualifying drugs.

* 'Psychoactive' substances are those having a direct effect on perception, mood, cognition, behaviour or motor function. Typically these include opiates and opioid analgesics, hypnotics, sedatives, anti-depressants, anti-epileptics, anti-psychotics, hallucinogens and stimulants such as amphetamines and cocaine.

** 'Directly implicated' means that drugs were considered by the coroner or other person investigating the death to have been instrumental in the coming about of the deceased's death (e.g. through poisoning or intoxication), or causing their powers of reasoning and/or perception to be so affected as to induce them to take risks which they would not have done had they been sober (e.g. thinking they could fly).

*** 'Controlled Drugs' are those drugs specifically classified by the Misuse of Drugs Act 1971 as amended by subsequent legislation. Controlled drugs include opioids, cocaine, amphetamines, cannabis, GHB, hallucinogens and most benzodiazepines.

Who is a drug abuser/dependent?

A drug abuser/dependent case is defined as one with a history of substance abuse where one or more of the following criteria are met:

- Reported as a known illicit drug user by the coroner, based on evidence obtained at inquest;
- Prescribed substitute medication for drug dependence;
- Presence of an illicit drug at post mortem, where not prescribed; or
- Presence of any additional information on the coroner's report suggestive of a history of drug abuse, and where such a history fulfils ICD-10 criteria: (F11-F16 and F19, using the 4-code subdivisions of .0 (acute intoxication), .1 (harmful use), and .2 (dependence syndrome).

Other activities and resources

The np-SAD team also conduct in-depth psychological autopsies on individual cases and carry out confidential inquiry exercises on request. The team also provides analysis of data for specific Drug and Alcohol Action Teams (DAATs), Primary Care Trusts (PCTs) and (Special Health Authorities) SHAs on request.

As a consequence of the work to date, information on the trends and patterns of death among UK drug misusers, including the impact of illicit and prescribed drugs, has been made available.

In addition to the above activities, the Programme

- Is the official custodian of the national UK Addicts Index Access database and paper files covering the period 1968-1997
- Holds a copy of the official Dead Addicts datafile
- Is located in an academic centre with input from relevant disciplines
- Brings to a broad range of expertise from different professional backgrounds – psychiatry, psychology, social science, pharmacology, epidemiology, addictive behavioural science, database, project management, etc.
- Has national and international experience, collaborating in research and training with bodies such as the World Health Organisation, European Monitoring Centre for Drugs and Drug Addiction (EMCDDA), and the European Collaborating Centres for Addiction Studies.

National Steering Group

The np-SAD has a National Steering Group to provide additional expertise to the Programme through involvement and participation. Its principal role is in giving advice on the full range of its activities, including the national surveillance of coroners and production of 6-monthly and annual reports.

Appendix 2: Coroner's jurisdictions/ police force areas reporting drug-related deaths, United Kingdom & Islands

Administrative county/area	Jurisdiction	Description
	(The) Queen's Household	"The Coroner of the Queen's Household has exclusive jurisdiction in respect of inquests and, semble, inquiries which do not lead to inquests, on persons whose bodies are lying within the limits of any of the Queen's palaces or within the limits of any other house where Her Majesty is then demurrant and abiding in her own royal person, notwithstanding the subsequent removal of Her Majesty from such palace or house. The limits of the palace or house are deemed to extend to any courts, gardens or other places within the curtilage of the palace or house but not further. Where a body is lying dead beyond these limits, the coroner of the Queen's Household has no jurisdiction."
ENGLAND		
Avon	Avon	The city of Bristol and the districts of Bath & North East Somerset, North West Somerset & South Gloucestershire
Bedfordshire	Bedfordshire & Luton	The whole county of Bedfordshire and the county of Luton
Berkshire	Berkshire	The whole county of Berkshire
Buckinghamshire	Buckinghamshire	The whole county of Buckinghamshire (excl. Milton Keynes)
	Milton Keynes	The whole county of Milton Keynes
Cambridgeshire	North & East Cambridgeshire	The districts of Fenland & East Cambridgeshire
	Peterborough	The district of Peterborough
	South & West Cambridgeshire	The City of Cambridge, the districts of Huntingdon and South Cambridgeshire
Cheshire	Cheshire	The whole county of Cheshire
Cornwall	Cornwall	The whole county of Cornwall (exc. Isles of Scilly)
	Isles of Scilly	The Isles of Scilly
Cumbria	North and West Cumbria	The districts of Allerdale, Carlisle and Copeland.
	South and East Cumbria	The districts of Barrow-in-Furness, Eden, and South Lakeland.
Derbyshire	Derby & South Derbyshire	The county of Derby and the districts of Erewash & South Derbyshire. The district of Amber Valley (except the parts in the Coroner's Jurisdictions of North Derbyshire). In the district of West Derbyshire, the parishes of Alkmonton, Ashbourne, Atlow, Biggin, Boylestone, Bradbourne, Bradley, Brailsford, Clifton & Compton, Cubley, Doveridge, Edlaston & Wyaston, Fenny Bentley, Hognaston, Hollington, Hulland, Hulland Ward, Hungry Bentley, Kirk Ireton, Kniveton, Lea Hall, Longford, Mapleton, Marston Montgomery, Mercaston, Norbury & Roston, Offcote & Underwood, Osmaston, Rodsley, Shirley, Snelston, Somersal Herbert, Sudbury, Thorpe, Tissington, Yeaveley and Yeldersley
	North Derbyshire	The District of Bolsover and North East Derbyshire. The Boroughs of Chesterfield and High Peak. In the Borough of Amber Valley the parishes of Denthick, Lea and Holloway, South Wingfield and Alfreton. The District of Derbyshire Dales except the parishes in the Derby and South Derbyshire Coroner's District.

Administrative county/area	Jurisdiction	Description
Devon	Exeter & Greater Devon	The districts of East Devon, Exeter, Mid Devon, North Devon, Torridge, West Devon. That part of the district of Teignbridge comprising the parishes of Alphington, Ashton, Bovey Tracey, Bridford, Christow, Chudleigh, Doddiscombsleigh, Dunchideock, Dunsford, Exminster, Hennock, Holcombe Burnell, Ide, Kenn, Lustleigh, Manaton, Moretonhampstead, North Bovey, Shillingford St George, Tedburn St Mary, Trusham & Whitestone.
	Plymouth & South West Devon	The district of Plymouth. The district of South Hams except the parishes in the Torbay and South Devon coroner's district.
	Torbay & South Devon	The district of Torbay. The district of Teignbridge except the parishes in the Coroner's Jurisdiction of Exeter and Greater Devon. That part of the district of South Hams comprising the parishes of Ashprington, Berry Pomeroy, Blackawton, Cornworthy, Dartington, Dartmouth, Dean Prior, Dittisham, Halwell, Harberton, Holne, Kingswear, Littlehampton, Marldon, Rattery, Slapton, Staverton, Stoke Fleming, Stoke Gabriel, Strete, Totnes and West Buckfastleigh
Dorset	Bournemouth, Poole & Eastern Dorset	The counties of Bournemouth & Poole, Christchurch, Purbeck and Wimbourne
	Western Dorset	The districts of West Dorset, North Dorset and Weymouth & Portland
Durham	Darlington & South Durham	The county of Darlington and the districts of Sedgefield and Teesdale {Wear Valley also included]
	North Durham	The districts of Chester-Le-Street, Derwentside, Durham and Easington
East Sussex	Brighton & Hove	The county of Brighton & Hove
	East Sussex	The whole county of East Sussex
Essex	Essex & Thurrock (Essex No 1)	The districts of Basildon, Braintree, Brentwood, Chelmsford, Colchester, Epping Forest, Harlow, Maldon, Tendring, Thurrock and Uttlesford
	Southend & South East Essex (Essex No 2)	The districts of Southend, Rochford and Castle Point
Gloucestershire	Gloucestershire	The county of Gloucestershire
Greater Manchester	Manchester	The district of Manchester
	North Manchester	The districts of Bury, Rochdale & Oldham
	South Manchester	The districts of Stockport, Tameside and Trafford
	West Manchester	The districts of Wigan, Bolton and Salford
Hampshire	Central Hampshire	The districts of Winchester, Test Valley and Eastleigh
	North East Hampshire	The districts of Basingstoke, Hart & Rushmoor and that part of the district of East Hampshire not contained in the Portsmouth & South East Hampshire coroner's district
	Portsmouth & South East Hants	The county of Portsmouth and the districts of Fareham, Gosport and Havant and, in the district of East Hampshire, the parishes of Buriton, Clanfield, Colemore and Priors Dean, East Meon, Froxfield, Hawkley, Horndean, Langrish, Liss, Petersfield, Rowlands Castle and Steep
	Southampton & New Forest	The county of Southampton and the district of New Forest
Herefordshire	Herefordshire	The whole county of Herefordshire
Hertfordshire	Hertfordshire	The whole county of Hertfordshire

Administrative county/area	Jurisdiction	Description
Humberside	East Riding & Hull	The counties of the East Riding of Yorkshire and the city of Kingston-upon-Hull
Isle of Wight	Isle of Wight	The whole county of the Isle of Wight
Kent	Central & South East Kent	The district of Shepway. The borough of Ashford. The district of Dover except those parishes with the North East Kent coroner's district. In the district of Swale, the parishes of Boughton under Bleab, Doddington, Dunkirk, Eastling, Faversham, Graveney & Goodnestone, Hernhill, Luddenham, Lynsted, Newnham, Norton & Buckland, Oare, Ospringe, Selling, Sheldwich Badlesmere & Leaveland, Stalisfield, Stone, Teynham, Throwley
	Mid Kent & Medway	The City of Rochester upon Medway, the districts of Gillingham and Maidstone. The district of Swale, with the exception of Faversham and the parishes in the Coroner's Jurisdiction of East Kent. In the district of Tonbridge and Malling, the parishes of Addington, Aylesford, Birling, Burham, Ditton, East Malling & Larkfield, King's Hill, Leybourne, Mereworth, Offham, Ryarsh, Snodland, Trottiscliffe, Wateringbury & East Peckham, Wouldham.
	North East Kent	The district of Thanet. The City of Canterbury. In the district of Dover, the parishes of Ash, Aylesham, Deal, Eastry, Eythorpe, Goodnestone, Great Mongeham, Nonington, Northbourne, Preston, Ringwould & Kingsdown, Ripple, Sandwich, Sholden, Staple, Stourmouth, Sutton by Dover, Tilmanstone, Walmer, Wingham, Woodnesborough, Worth.
	North West Kent	The districts of Dartford, Gravesham, Sevenoaks and Tunbridge Wells. The district of Tonbridge and Malling, except the parishes in the Mid-Kent and Medway Coroner's district.
Lancashire	Blackburn, Hyndburn & Ribble Valley	The districts of Blackburn, Hyndburn & Ribble Valley
	Blackpool & the Fylde	The districts of Blackpool and Fylde
	East Lancashire	The districts of Burnley, Pendle and Rossendale
	Preston & West Lancashire	The districts of Lancaster, Wyre, Chorley, Preston, South Ribble and West Lancashire
Leicestershire	Leicester City & South Leicestershire	The county of Leicester and the districts of Blaby, Harborough, Oadby, Wigston
	Rutland & North Leicestershire	The county of Rutland and the districts of Charnwood, Hinckley & Bosworth, Melton and North West Leicestershire
Lincolnshire	Boston & Spalding	The districts of Boston and South Holland
	North Lincolnshire & Grimsby	The counties of North Lincolnshire and North East Lincolnshire
	Spilsby & Louth	The district of East Lindsey, except the parishes in the West Lincolnshire coroners' district. In the district of West Lindsey, the parishes of Bigby, Brocklesbury, Cabourne, Caistor, Claxby, Grasby, Great Limber, Holton Le Moor, Keelby, Kirmond le Mire, Legsby Linwood, Market Rasen, Middle Rasen, Nettleton, Normanby le Wold, North Kelsey, North Willingham, Osgodby, Owersby, Riby, Rothwell, Searby cum Owmby, Sixhills, Somerby, South Kelsey, Stainton le Vale, Swallow, Swinhope, Tealby, Thoresway, Thorganby and Walesby.

Administrative county/area	Jurisdiction	Description
	Stamford	In the district of South Kesteven, the parishes of Aslackby & Laughton, Barholm & Stowe, Baston, Billingborough, Bourne, Braceborough & Wilsthorpe, Careby Aunby & Holywell, Carlby, Castle Bytham, Corby Glen, Counthorpe & Creeton, Deeping St James, Dowsby, Dunsby, Edenham, Folkingham, Greatford, Haconby, Horbling, Irnham, Kirkby Underwood, Langtoft, Little Bytham, Market Deeping, Morton, Pointon & Sempringham, Rippingale, Stamford, Swayfield, Swinstead, Tallington, Thurlby, Toft with Lound & Manthorpe, Uffington, West Deeping and Witham on the Hill
	West Lincolnshire	The district of Lincoln. The district of North Kesteven. The district of South Kestevan, except the parishes in the Coroner's Jurisdiction of Stamford. The district of West Lindsey, except the parishes in the Coroner's jurisdiction of Spilsby & Louth. In the district of East Lindsey, the parishes of East & West Barkwith, Hatton, Langton by Wragby, Panton, West Torrington, Wragby.
London	City of London	City of London
	Eastern London	The London boroughs of Barking, Havering, Newham, Redbridge & Waltham Forest
	Inner North London	The London boroughs of Camden, Hackney, Islington & Tower Hamlets
	Inner South London	The London boroughs of Greenwich, Lambeth, Lewisham & Southwark
	Inner West London	The London boroughs of Wandsworth & Merton, the Royal Borough of Kensington & Chelsea, and the City of Westminster
	Northern London	The London boroughs of Barnet, Brent, Enfield, Haringey & Harrow
	Southern London	The London boroughs of Bexley, Bromley, Croydon and Sutton
	Western London	The London boroughs of Ealing, Hammersmith, Hillingdon, Hounslow and Richmond-upon-Thames, and the Royal Borough of Kingston-upon-Thames
Merseyside	Knowsley, St Helens & Sefton	The districts of Knowsley, St Helens and Sefton
	Liverpool	The district of Liverpool
	Wirral	The district of Wirral
Norfolk	Greater Norfolk	The city of Norwich, the districts of Breckland, Broadland, King's Lynn, North Norfolk, South Norfolk, and West Norfolk
	Great Yarmouth	The borough of Great Yarmouth
Northamptonshire	Northamptonshire	The whole county of Northamptonshire
Northumberland	North Northumberland	The districts of Alnwick and Berwick-upon-Tweed and so much of the districts of Castle Morpeth and Wansbeck as lies north of the line for the time being of the centre of the River Wansbeck
	South Northumberland	The districts of Blyth Valley & Tynedale, and so much of the districts of Castle Morpeth & Wansbeck as lie south of the line for the time being of the centre of the River Wansbeck
North Yorkshire	North Yorkshire Eastern	The districts of Hambleton, Ryedale and Scarborough
	North Yorkshire Western	The districts of Richmondshire, Craven, Harrogate and Selby

Administrative county/area	Jurisdiction	Description
	York	The county of York. In the district of Harrogate, the parishes of Nether and Upper Poppleton. In the district of Ryedale, the parishes of Clifton (without), Earswick, Haxby, Heworth (without), Holtby, Huntington, Murton, New Earswick, Osbaldwick, Rawcliffe, Skelton, Stockton-on-the-Forest, Strensall, Towthorpe, Wigginton. In the district of Selby, the parishes of Dunnington, Elvington, Fulford, Heslington, Kexby, Naburn & Deighton, Wheldrake.
Nottinghamshire	Nottinghamshire	The whole county of Nottinghamshire and the City of Nottingham
Oxfordshire	Oxfordshire	The whole of the county of Oxfordshire
Shropshire	Mid & North Shropshire	The districts of Oswestry, North Shropshire, Shrewsbury & Atcham
	South Shropshire	The districts of South Shropshire and Bridgnorth
	The Wrekin	The whole county of the Wrekin
Somerset	Eastern Somerset	The districts of Mendip and South Somerset
	Western Somerset	The districts of Sedgemoor, Taunton Deane and West Somerset
South Yorkshire	South Yorkshire East	The district of Doncaster and Rotherham
	South Yorkshire West	The districts of Barnsley and Sheffield
Staffordshire	South Staffordshire	The districts of Cannock Chase, East Staffordshire, Lichfield, South Staffordshire, Stafford and Tamworth.
	Stoke-on-Trent & North Staffordshire	The county of Stoke-on-Trent, and the districts of Newcastle-under-Lyme and Staffordshire Moorlands.
Suffolk	Suffolk	The county of Suffolk.
Surrey	Surrey	The whole county of Surrey
Teesside	Hartlepool	The county of Hartlepool
	Teesside	The counties of Middlesbrough, Redcar & Cleveland and Stockton-on-Tees.
Tyne & Wear	Gateshead & South Tyneside	The districts of Gateshead and South Tyneside
	Newcastle-upon-Tyne	The City of Newcastle-upon-Tyne
	North Tyneside	The district of North Tyneside
	Sunderland	The district of Sunderland
Warwickshire	Warwickshire	The whole county of Warwickshire
West Midlands	Birmingham	The districts of Birmingham & Solihull
	Black Country	The districts of Dudley, Sandwell, and Walsall
	Coventry	The district of Coventry
	Wolverhampton	The district of Wolverhampton
West Sussex	West Sussex	The whole county of West Sussex
West Yorkshire	West Yorkshire Eastern	The metropolitan district of Leeds and Wakefield
	West Yorkshire Western	The metropolitan districts of Bradford, Calderdale and Kirklees
Wiltshire	Wiltshire & Swindon	The counties of Wiltshire and Swindon
Worcestershire	Worcestershire	The whole county of Worcestershire
WALES		
	Bridgend & Glamorgan Valleys	The county boroughs of Bridgend, Merthyr Tydfil & Rhondda, Cynon & Taff
	Cardiff & the Vale of Glamorgan	The county of Cardiff and the county borough of the Vale of Glamorgan
	Carmarthenshire	The districts of Carmarthen, Llanelli and Dinefwr
	Central North Wales	The county of Denbighshire, the county borough of Aberconwy & Colwyn.
	Ceredigion	The district of Ceredigion
	Gwent	The county of Monmouthshire, the county borough of Blaenau Gwent, Caerphilly, Newport and Torfaen

Administrative county/area	Jurisdiction	Description
	Neath & Port Talbot	The districts of Neath & Port Talbot. In the borough of Lliw Valley, the communties of Cilybebyll, Clydach, Cwmllnfell, Gwam-Cae-Gurwen, Mawr, Pontardawe & Ystalyfera
	North East Wales	The boroughs of Flintshire and Wrexham. In the district of Glyndwr, the communities of Ceiriog Ucha, Chirk, Glyntraian, Llangedwyn, Llangollen, Llangollen Rural, Llanrhaeadr-ym-Mochnant, Llansantffraid Glyn Ceiriog, Llansilin & Llantysilio.
	North West Wales	The counties of Anglesey, Caernarfonshire, Merionethshire
	Pembrokeshire	The district of Preseli and South Pembrokeshire (including Caldey Island and St Margaret's Island)
	Powys	The whole county of Powys
	Swansea	The district of Swansea. In the borough of Lliw Valley, the communities of Gorseinon, Gowerton, Grovesend, Llangyfelach, Llwchwr, Penllergaer, Pontarsulais, Pont-Lliw.
NORTHERN IRELAND		
NORTHERN IRELAND		Whole of Northern Ireland
THE ISLANDS		
	Guernsey	Alderney, Brecqhou, Guernsey, Herm, Jethou, Lihou, Little Sark, Sark
	Jersey	Jersey
	Isle of Man	Isle of Man
SCOTLAND		
Argyll & Clyde	Dumbarton	Fiscal area (but figures included in Strathclyde Police figures)
Central Scotland Police		Clackmannanshire, Falkirk, and Stirling Council areas
Dumfries & Galloway Constabulary		Dumfries & Galloway Council area
Fife Constabulary		Fife Council area
Grampian Police		City of Aberdeen, Aberdeenshire, and Moray Council areas
Lothian & Borders Police		East Lothian, City of Edinburgh, Midlothian, West Lothian, and the Borders Council areas
Northern Constabulary		Highland, Orkney Islands, Shetlands Islands, and Western Isles Council areas, and parts of Argyllshire (Ardnamuchan and Glencoe) and Morayshire (Grantown-on-Spey and Cromdale)
Strathclyde Police		Argyll and Bute, East Dumbartonshire, Dumbarton and Clydebank, South Lanarkshire, North Lanarkshire, East Ayrshire, North Ayrshire, East Renfrewshire, City of Glasgow, Inverclyde, South Ayrshire, and Renfrewshire Council areas
Tayside Police		Angus, City of Dundee, and Perthshire and Kinross Council areas

Since the start of 2004, the following amalgamations of coroners' jurisdictions in England have occurred: East Berkshire, Reading and West Berkshire to form one for the whole county of Berkshire (1 April 2004); East and West Cornwall to form one for the whole county of Cornwall, but excluding the Isles of Scilly (1 February 2004); in Cumbria, Furness and Southern Cumbria to form South Cumbria & Furness (1 April 2004); Hertford and West & North Hertfordshire to form one for the whole county of Hertfordshire (1 October 2004); in Lincolnshire, Louth and Spilsby to form Spilsby & Louth (1 December 2003); in the West Midlands, Dudley, Sandwell, and Walsall to form Black Country (1 August 2004); in Derbyshire, High Peak and Scarsdale to form North Derbyshire (1 February 2006); in Gloucestershire, Gloucester and Cheltenham to form Gloucestershire (1 April 2006); in Suffolk, Greater Suffolk and Lowestoft to form Suffolk (1 August 2006). Further amalgamations have taken place in 2007, these changes will be reflected in future reports.

The retirement of several coroners has resulted in some coroners taking on responsibility for additional jurisdictions. The Isles of Scilly (regarded as part of Cornwall) are currently being looked after by the coroner for Plymouth & South West Devon. Data for Herefordshire are also submitted now together with those for Worcestershire. The two jurisdictions in Durham are now being looked after by the same coroner, but have not been formally amalgamated. The coroner for Suffolk is also coroner for Southend & South East Essex.

In Northern Ireland, a process of amalgamation has been completed and since 1 April 2006 there has been a single coroner's area covering the whole of the Province. It is centred on the Greater Belfast office and served by three full-time coroners, overseen by a High Court judge.

Appendix 3: np-SAD data collection form

The National Programme on Substance Abuse Deaths (np-SAD)

NOTIFICATION OF DRUG-RELATED DEATHS

Section I Demographic information

Deceased forename(s): _____ Gender: ☐ Male ☐ Female

Family name: _____Other names known by: _____

Date of birth: _____/_____/_____ Place of birth: _____

Usual address:_____

_____Postcode: _____

Ethnicity (tick one only)

☐ White ☐ Pakistani ☐ Black African ☐ Other, specify_____

☐ Chinese ☐ Bangladeshi ☐ Black Caribbean ☐ Not known

☐ Indian ☐ Black other, specify _____

Occupational status (tick one only)

☐ Employed (manual) ☐ Unemployed ☐ Retired

☐ Employed (non-manual) ☐ Childcare/houseperson ☐ Student/pupil

☐ Self employed ☐ Invalidity/sickness ☐ Other, specify_____

☐ Not known

Living arrangements (tick one only)

☐ Alone ☐ Self and children ☐ No fixed abode

☐ With partner ☐ With parent(s) ☐ Other, specify_____

☐ With partner & children ☐ With friend(s) ☐ Not known

Section II Details of death

Date of death: _____/_____/_____

Place of death: (tick one only)

☐ Home ☐ Residential premises (.e. hotel) ☐ In custody

☐ Place of work ☐ Street or highway ☐ Place of recreation/sport

☐ Treatment centre ☐ Educational establishment ☐ Hospital

☐ Other place, specify_____

Cause(s) of death (as given on the death certificate)

1(a)_____
(b) _____
(c) _____
2 _____

The National Programme on Substance Abuse Deaths (np-SAD)

Toxicology
Please list drugs and alcohol present at post mortem (in order of importance, if known)

	Drug/alcohol	Level				Drug/alcohol	Level		
		B	T	U			*B*	*T*	*U*
1					4				
2					5				
3					6				

B = Blood; T = Tissues; U = Urine

Section III Coroner's verdict

Section IV Background information

Recent history of drug use and other relevant information: e.g. evidence of injecting drug use; evidence of 'crack' use; recently released from prison or discharged from treatment programme; psychiatric history; known to alcohol/drug services; length of use; poly-substance user; known health problems associated with substance misuse; last 24 hours of life (if known), time police summoned, any drugs paraphernalia, etc.:

Was the deceased on prescribed psychoactive medication? □ Yes □ No □ Not known
If yes, please list drugs:
1 _____ 2 _____
3 _____ 4 _____
5 _____ 6 _____

Was the deceased a drug addict or known drug abuser? □ Yes □ No □ Not known

Section V Coroner's details

Coroner's name: _____Date inquest completed: ____/_____/_____
Jurisdiction: _____ Office: _____
Signature: _____ Date: _____/_____/_____

Please send completed form to:

National Programme on Substance Abuse Deaths (np-SAD)
International Centre for Drug Policy
St George's, University of London
FREEPOST LON 10141,
London SW17 0BR

For general enquiries: Tel 020 8725 2623 or Fax 020 8266 6494

This form is available electronically

Copies available from

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International Centre for Drug Policy (ICDP)
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